

REVIEWS! Calibar, RenderFX 2.0, Gaffer and LightWave 3D 5.5

NEW TECHNIQUES

JOHN GROSS
DEMO REEL ADVICE

MOJO
LIFE AT
THE TOP

TOM WILLIAMSON
MEN in
BLACK:
ON A WING
AND A PRAYER

FOR LIGHTWAVE 3D & VIDEO TOASTER/FLYER USERS

RON THORNTON:
LIGHTWAVE
PIONEER

THE MUSE THAT ROARED

DIGITAL MUSE
WRINKLES THE
SPACE/TIME
CONTINUUM

TUTORIALS

- SPIKE'S SNAKING STEAMER SMOKE
- SKIN-O-MATIC TEXTURE MAPS
- SEAMLESS VIDEO CLIPS

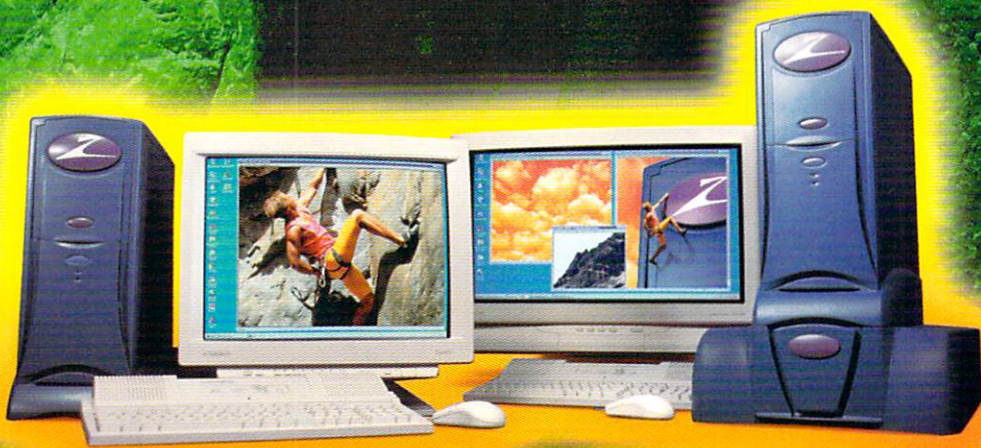


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Circle #212

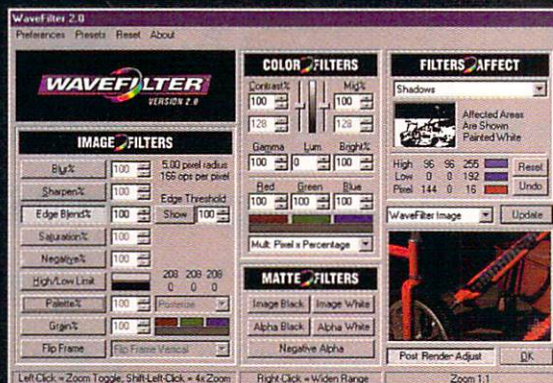


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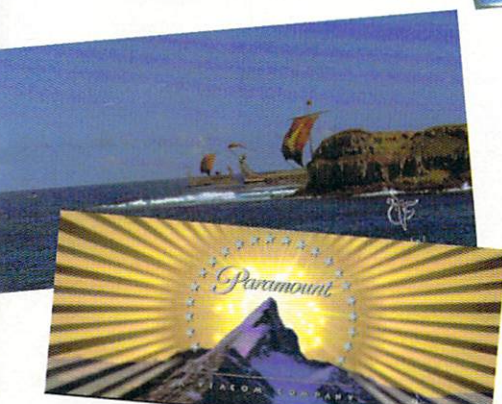
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NewTekNIQUES

C O N T E N T S

Volume 1, No. 3, October/November 1997



COVER STORY

page 20

Digital Muse:
The Muse
That Roared

by Dick De Jong
and Molly Dinkins



COLUMNS

Waves: Bug Fixes and Advice 14

by John Gross

Flying High: The Tale of Ghosts and Clones 16

by Joe Tracy

LightWave 101: Finishing the DNA Strand 34

by Scott Wheeler

**Wave F/X: Men in Black's Dragonfly Title Sequence:
On a Wing and a Prayer.** 38

by Tom Williamson

Mojo: Life at the Top: Be Careful What You Wish For. .. 80

by Mojo

ON THE COVER:

This month's cover was created by Digital Muse animators in LightWave 3D 5.0 on an Alpha-based Windows NT workstation.

TUTORIALS

LightWave 3D 5.5 Feature Makes It Easy: Spike's Snaking Steamer Smoke 44

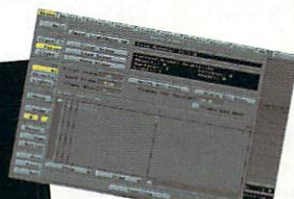
by Ryan "Spike" Dauner

A Facial Peel That Doesn't Burn: Skin-O-Matic 48

by Erik Flom

A Trade Secret for Infinitely Looping: Seamless Video Clips 52

by Eric Bottorff



NewTek's new NTSC test signal generator, Calibar, reviewed on page 61.

REVIEWS

Gaffer 58

by Dave Thomas

LightWave 3D 5.5 .. 59

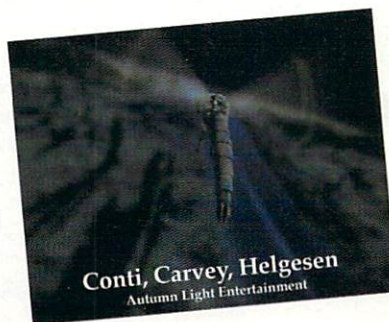
by Joe Clasen

RenderFX 2.0 60

by Fred Berney

Calibar 61

by Jim Davis



Conti, Carvey, Helgesen
Autumn Light Entertainment

TekMasters

**RIGHT GUY,
RIGHT PLACE**
Foundation
Imaging's
Ron Thornton

page 30



DEPARTMENTS

TekTalk 4

Our Editor's opinions on issues of concern to you

Ask NewTek 6

Your chance to question NewTek staff directly

Short Takes 8

News of note from the world of NewTek and beyond

Tekniques 40

Author- and reader-submitted tips and techniques for using NewTek products

Renderers 57

Artwork contributed by our readers

Premieres 62

New products take a bow on our stage

Surf Report 64

A round-up of online resource sites



TekTALK

OUR EDITOR'S OPINIONS ON IMPORTANT NEWTEK ISSUES

BY JOE TRACY

Focusing on product deadlines, aliens, super ships, and superheroes.

Navigating the Winds of Change TITANIC POLICIES

Have you ever paid full admission to a movie just to see a preview? That was my recent motive as I dished out full admission for the movie *In & Out* with no intention of seeing it! My interest was strictly in the promised preview of James Cameron's *Titanic* that was to appear before the film. As scheduled, the preview did air and was worth every penny.

A number of the effects for *Titanic*, which has received rave reviews by test audiences, were created by the LightWave NT team at Digital Domain. The effects are so realistic that it will be nearly impossible to tell where the computer-generated shots were used! See the next issue of *NewTekniques* for details on *Titanic*, which hits theaters on Dec. 19.

Like the *Titanic*, Digital Domain's LightWave NT team struck an iceberg at the news that one of their lead animators, Grant Boucher, left to start a LightWave-based effects company. Boucher is now the CEO and president of Planet X.

Titanic Aliens and Superheroes

LightWave 3D's use in Hollywood isn't limited to 3D effects. A look at *Starship Troopers* and *Batman Vs. Mr. Freeze: SubZero* will quickly reveal that. *Starship Troopers* might have used models for its ship effects, but those are models in which the motion paths for the movements were created in LightWave! Check out "ShortTakes" in this issue for more information.

In *Batman Vs. Mr. Freeze: SubZero*, Foundation Imaging had the unique task of using CG 3D animation to create 2D-looking shots. More companies are getting into this type of animation now, including Fox, where 3D animation programs were used for many 2D effects in the upcoming *Anastasia*.

Policies and Paint

For the past couple of years, NewTek has implemented a very strict policy about not discussing or announcing any products until they were completed and close to shipping. This policy was broken at the

recent SIGGRAPH where NewTek demonstrated portions of a new paint program (formerly TV Paint) that it is preparing to release sometime in "early 1998." It will be multi-platform and will integrate closely with LightWave 3D to perform functions no other paint program "can come close to." With the capability to do compositing, unlimited layering, rotoscoping, transitions, animated texture maps, effects, some editing, painting on objects, and much more, this program has been described by some as a mixture of After Effects, Photoshop, and Deluxe-Paint. But NewTek runs into a potential PR disaster if this program doesn't ship. NewTek has worked hard to avoid the "Trinity syndrome," so it is my sincere hope that the delivery is made in "early 1998" so the focus can remain on NewTek's products, versus whether a promise is kept.

UFO Winner

Congratulations to Ty Robinson, whose winning entry in the Five-Minute UFO contest appears in the "Renders" column of this issue. You can see the images of the two runners-up (John Niehuss and James Darknell) at my *NewTekniques* Web pages located at www.studiovisions.com/newtekniques. Once there, select "Contests." There will be a new contest in the next issue of *NewTekniques* to complement the "Five-Minute Logo" tutorial.

Soon NewTekniques will be sailing into 1998, covering the winds of change on NewTek's horizon. If 1997 is any indication of what 1998 will bring, then I believe we'll be in for a real adventure.

NewTekniques

VOLUME 1 • NUMBER 3 • Published by ADVANSTAR Communications

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THE LATEST MOVIE

superhero

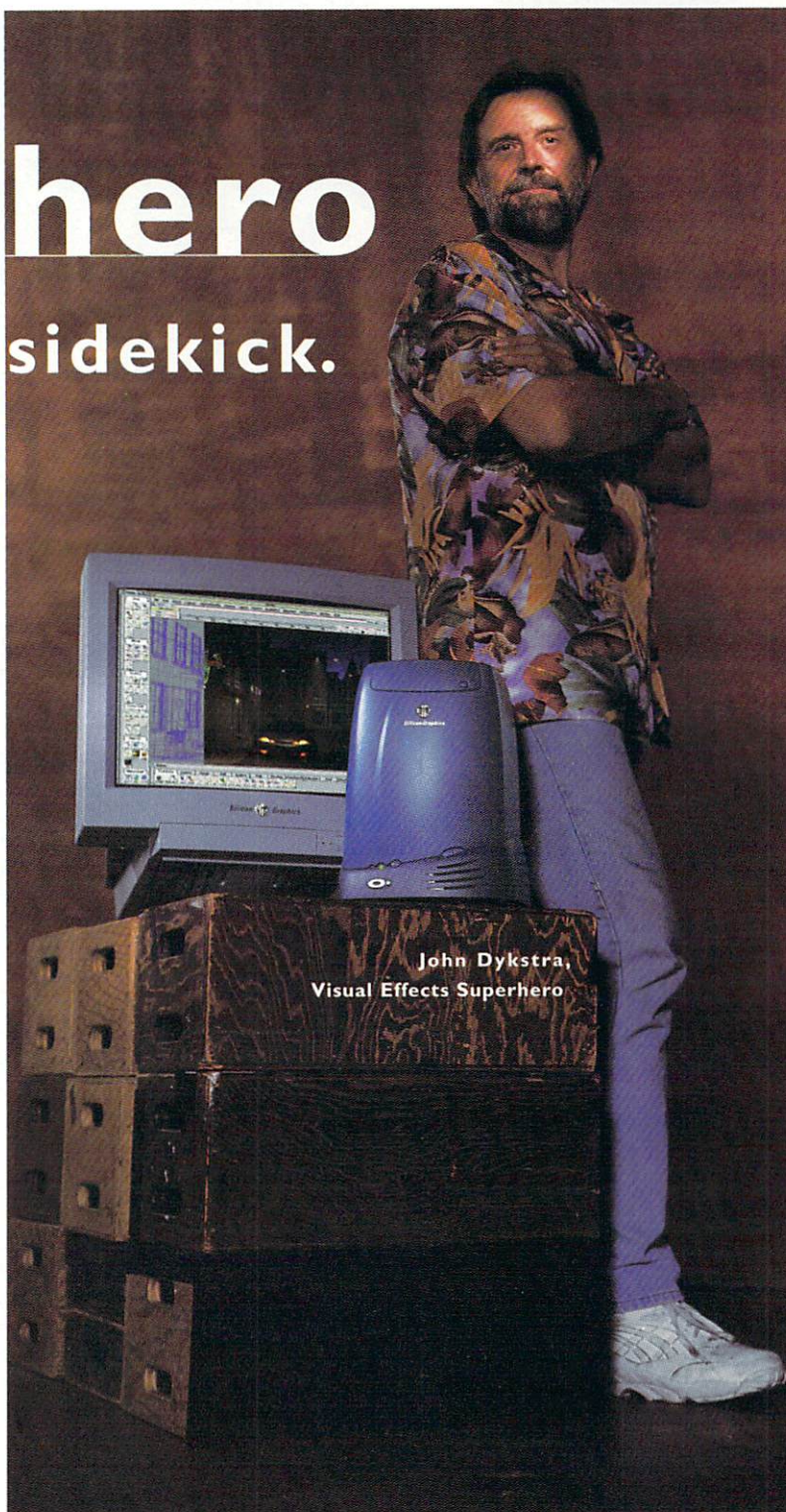
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Q. *I understand that you introduced a new paint program at SIG-GRAPH. What exactly does it do and how does it incorporate with LightWave 3D? What platforms will it be available on?*

A. The 2D and 3D paint and animation package is designed to work either independently or in conjunction with LightWave 3D. The paint package also includes compositing, unlimited layers, animated text, rotoscoping, and many additional features. It is still in development and we will be talking more about it in the beginning of 1998. Plans now are for a PC version.

Q. *Do you plan on incorporating Surround Sound capabilities into future Flyer upgrades? What are some of the capabilities you are working on in Flyer 5.0?*

A. There are no specific plans for Surround Sound at this time. Upgrade plans for Flyer 5.0 have not been completed and thus we have no specific details on capabilities. Discussions are still under way with our users and developers for future Flyer upgrades.

Q. *Do you have any plans to implement a more robust plug-in architecture for LightWave 3D? Also, will the capability to clone an object and its descendants be added?*

A. A new software development kit is being rewritten at this time and should be incorporated in future releases. (No details on 6.0 are publicly available at this point).

Q. *Caliber came as a complete surprise to the video world; any*

other tricks up your sleeve that will be unveiled down the road?

A. Keep checking our sleeve and look for new announcements.

Q. *Will there be any future Flyer development on the Amiga platform?*

A. As long as there is a market for the Amiga platform, we will continue to support it.

Q. *What's the most flexible and time-tested way to create a skeleton using bones in LightWave? This assumes I will eventually wish to add IK to the bone chains to get it to move properly. Also, how do you get other objects to track bones properly (like glasses or parented clothes), when such a character moves?*

A. NewTek's Brad Peebler responds: Well, the first question is double-edged. The most flexible way is also the least time-tested. Using Skeleton Maker (Modeler plug-in) allows the user to simply draw splines to create bone placement. This is certainly the easiest method, but not the most time-tested. There is also the capability to simply Draw Bones in Layout 5.5. This is a very good way to place bones quickly and with great accuracy. Draw Bones will also enable you to draw child bones, which creates the hierarchy automatically and is very useful when placing bones for use with IK.

The time-tested solution is to add bones manually and then place them. This is also the least flexible. Because placing bones this way is not optimal, we have

added the previously mentioned features to 5.5. Since they are both new to 5.5, neither is time-tested but both are certainly superior to the previous method.

The second question is also two questions in one. Glasses are a rigid body that you only want to follow the position of the bones controlling the head of an object. The glasses should not be deformed by the head bone, so you should use the Parent Bone plug-in available in the motion plug-ins. This will allow you to parent the glasses to any bone in the scene.

The best way to have bones deform clothes is to have the clothes be a part of the body mesh. This way the bones affecting the mesh also control the clothes. If for some reason this is not possible, the clothes should have a second set of bones to control them. These bones can either be hand animated to match the body (for ultimate control), or use the Parent Bone plug-in to have the second set of bones follow the first (less control).

Q. *Now that you've moved to Texas, how can I reach you?*

A. Our new corporate facilities are beautiful and located in San Antonio, TX. Our address is

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Image created using the Pencil and Fresnel Shaders.



Image created using the Fresnel Shader.



Image created using Soft Reflections.



Image created using the Fresnel Shader.

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Amiga, Inc. is committed to keeping the Amiga in the public eye by attending and helping to organize trade shows. Some of the shows the company is working with and will attend are:

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NewTek Expo 1997
Oct. 19-22

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March 13-15, 1998

If you are planning a show or would like to know how your company can coordinate with Amiga Inc. on trade show related organization, contact:

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NEWS OF NOTE FROM THE WORLD OF NEWTEK AND BEYOND

ShortTakes

BY FLETCHER HAUG

THE AMIGA TO KNOW IT IS TO LOVE IT

To know the Amiga is to love it, even though it is difficult to be a loyal Amiga user today without being a little frustrated. While other computers continue to move forward in leaps and bounds, Amiga users are left with a great but aging computer. There have been no technologically new machines released in years, and new product development is left solely in the hands of third-party manufacturers. Some development companies find that sales don't meet expectations and small dealers are fighting the odds to make ends meet. Yet these companies persevere with the belief that the Amiga will one day make a comeback.

What really drives the Amiga and sets it apart is its community of users. They give it heart and that continues to keep this platform alive. It is vibrant and prolific and produces a plethora of quality software, released to the public for the benefit of all. Aminet, the huge repository of shareware, is one of the main reasons the Amiga is still a viable and functioning platform today. Without the contributions of this Amiga community, the Amiga would have been relegated to history long ago.

Dealers and developers have become lean and savvy during these troubled times. Amiga programmers continue to pursue their work with passion and produce innovative solutions to increasing software demands. Surprisingly, many companies are thriving in the Amiga business. They have learned to exploit the Internet to cleverly market and distribute their products. They know that it is vital to stay connected to the community and

listen to what it says. It is these very companies that will be ready when the Amiga again makes its presence known.

Most of us know the current shape of the Amiga, but what we need to know more about is the future. Gateway 2000 now holds all rights to the Amiga technologies, and Gateway's track record is an example of success. The gem of the Amiga, the OS, caught Gateway's eye. This compact and efficient OS can be placed neatly on a chip and installed into many devices, from telephones to Mars rovers. Gateway created two wholly-owned but separate companies, one based in Germany called Amiga International and another based in Sioux City, called Amiga, Inc. An Amiga-specific research and development staff, headed by Jeff Schindler, is being assembled directly from the Amiga community. This fact has tremendous implications. If the R&D team is made up of Amiga loyalists, it certainly means the spirit of the Amiga community will pervade Amiga, Inc. Darreck Lisle is the new public relations coordinator. One of his first tasks is to coordinate trade shows. Already Amiga, Inc. plans to attend at least five shows in the next six months. Likewise, there is an effort underway by Amiga Inc. to organize developer conferences at these shows and to establish an official forum where developers can share their ideas under the coordination of Amiga, Inc. Another positive fact is that Amiga, Inc. puts great priority on 100 percent backward compatibility. This fact alone indicates an intention to develop a new Amiga system that will maintain compatibility with existing software.

To date, Amiga, Inc. has released little official information. Many believe this suggests duplicity, but others argue it represents smart business practice. Amiga, Inc. is using good business sense in not announcing its intentions. Intentions can be miscommunicated. Instead, the company will only announce solid plans.

Even though the big picture is not yet clear, I personally feel very positive about the Amiga's future. It will be gratifying to finally see a company deliver what it promised. If Amiga, Inc. does this, it will go a long way to secure the loyalty of the Amiga community, and that loyalty will be vital for them to thrive.

Fletcher Haug is the editor-in-chief of *The Amiga Informer*. He can be reached by email ateldritch@mhv.net or on the World Wide Web at www.amigaformer.com.

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ShortTakes

SILVER SURFER CATCHES THE WAVE

BY JOE CLASEN AND SUSAN ISHIDA

LightWave 3D users and Marvel Comics fans may soon have to start waking up early on Saturday mornings. Starting in early 1998, "The Silver Surfer" will begin a new journey through uncharted 3D galaxies thanks to an innovative mix of traditional, hand-drawn cel animation and LightWave cel edge and cel shader animation. LightWave will make it possible for the show to feature a rich and complex universe full of strange planets, extraordinary ships, and cosmic special effects that otherwise would be impossible to produce within the budget and time constraints of Saturday morning television.

It will come as no surprise to LightWave users that our favorite 3D package can be used to model and animate cool spaceships and planets. The look of the Silver Surfer's world may come as a bit of a surprise though, even to those familiar with LightWave and its cel-look effects. Dale Hendrickson, former art director for "The Simpsons" and now art director and CGI supervisor for the Silver Surfer, decided to base the look of the show on the unique style of the classic Marvel artist, Jack Kirby. Back in the 1960s, Kirby reinvented the look of comic books with his own dramatic, high-energy style. As the new millennium approaches, Hendrickson is betting that the bold style of Kirby combined with the power of LightWave will help usher in a new look for Saturday morning animation.

Besides amazing ships and mysterious worlds, LightWave is being used to create the character of Galactus, the omnipotent being who roams the galaxy feeding on planets. LightWave 3D 5.5 features like Morph Gizmo are being used to bring life to the MetaNURBS-modeled character. Lip syncing and other facial expressions are a breeze to animate with this new feature. Artists are provided with detailed exposure sheets that list all the phonetic sounds the character produces in the process of speaking his line. Each sound has a corresponding keyframe number that the artist uses to create keyframes in Morph Gizmo. By matching the exposure sheet keys with the Gizmo keys, the artist is assured that the animation will sync correctly with the audio track.

Other new features like Steamer are providing special effects to enhance Galactus' unearthly qualities. Galactus emits energy in the form of bolts and sparks and what the Surfer team affectionately refers to as "Kirby Dots." Steamer, used with Particle Storm, can create an infinite variety of energy effects that are not only visually interesting, but also highly controllable. CGI technical director Don McCoy is always looking for interesting new plug-ins that can provide the show with new looks and effects, while still maintaining the essence of the Kirby style.

The character of the Silver Surfer himself is being produced as traditional cel animation and will ultimately be composited with the

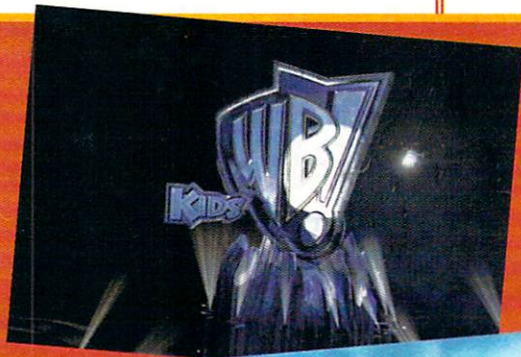
Image courtesy of Saban Entertainment, Inc.



LightWave animation. It's Hendrickson's responsibility to make sure that the hand-drawn and computer-generated elements blend together. Early response to the work has been extremely enthusiastic and the amount of LightWave animation being used in the show keeps increasing with every new set of story boards. Tests have been done to create the Surfer himself in LightWave and the idea still intrigues the Silver Surfer team. As LightWave continues to evolve and the talents of the artists who use it continue to mature, there are very few things left that LightWave can't do.

"The Silver Surfer" will air Saturday mornings on Fox starting in January. The show is being produced by Saban Entertainment, Inc. in Los Angeles, and will help expand the use of LightWave 3D at Saban and other animation studios. Looks like everybody is catching the "Wave!"

Joe Clasen and Susan Ishida run Joe's Digital Bar & Grill. Recent projects include Casper — A Spirited Beginning and "The Silver Surfer."



Kids WB Goes LightWave 3D

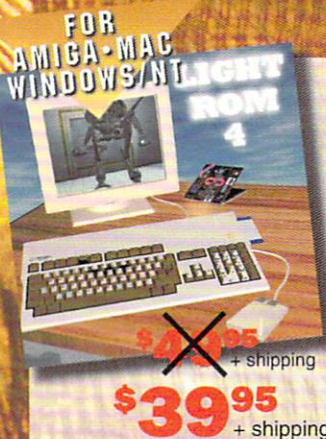
Those watching Kids WB on the Warner Bros. network can't help but get a heavy dose of LightWave 3D work, courtesy of Spin Cycle Animation & FX.

"Kids WB is now airing our LightWave-generated spots daily," says Jake Carvey, Vice president of Animation and effects for Spin Cycle. "This includes the 3D lot, vehicles, and logos, including the giant metallic logo."

Adobe After Effects and Photoshop were also used in the LightWave creations. Carvey says that they also used LightWave plug-ins like Puppet Master, Light Diffusion, Load From Scene, RealTools, Gaffer, and WaveFilter Net +. One of the most valuable plug-ins they used, according to Carvey, was Lazy Points, which comes with LightWave and played a major role in all the logo effects.

"We also composited a number of characters, including Bugs Bunny, Lola Bunny, Sylvester, Tweety, Taz, and Pinky & the Brain," Carvey told *NewTechniques*. Those working on the animation include Carvey, Marco Mire, Eric Baldwin, Kevin Cook, and Enrique Monoz. They are all part of the Spin Cycle team at Universal Studios Hollywood.

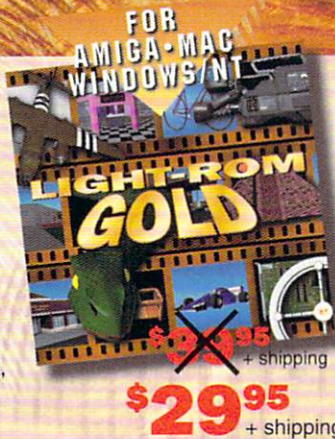
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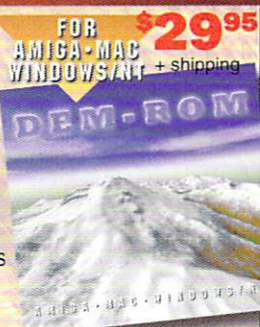
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LightWave 3D Delivers the Troops

Starship Troopers should be storming your local cineplexes any day now. During Paul Verhoeven's production of the intergalactic war between humans and alien insects, Radical 3D, a small visual effects house in Century City, CA, recruited LightWave 3D to help deliver the brave troops to their entomological destiny. Radical 3D is a symbiotic partnership between Jason McKinley and Jim Dziadulewicz

LightWave 3D in a space movie, so what's new? Jim Dziadulewicz's work with the Navy, for a start. In his "day job," he's an engineer in the modeling and simulation department at the Naval Air Warfare Center at Point Mugu, CA. Among his other duties, he uses LightWave to model targets for training and simulation exercises.

Jason McKinley graduated from UCLA film school and has TV and film experience as a writer, editor, and producer. McKinley and Dziadulewicz met about a year and a half ago on a project and decided to mesh their complementary skills to form Radical 3D.

The real twist to this tale is how Radical 3D employed LightWave in *Starship Troopers*. Instead of modeling starships, McKinley and Dziadulewicz worked for more than four months setting up the space scenes and motion paths that would guide the motion control process.

The original plan for the visual effects was to do the whole show in CGI and then it was decided to use real models and that set the schedule on its ear. To expedite the process of setting up the scenes and the motion paths, Radical 3D was hired to design the shots with LightWave. After the shots were approved, the

LightWave scene files were translated by a proprietary plug-in and fed into the motion control system.

This method allowed for experimentation and fine tuning. "We could do two or three takes a day on LightWave," McKinley said. "With motion control, they might be able to do one every two or three days." This efficiency was important because sometimes the designers had not quite decided what the shot was going to look like. With LightWave, they could try a shot a number of different ways and only take it to motion control when the shot was perfected.

"It's the first time that I know of that LightWave was used like this," McKinley said. "It was very cool."

Recently, McKinley and Dziadulewicz teamed to work on a Subaru ad. The agency wanted a glider to swoop over the shot of their Outback curving its way through an idyllic setting. Dziadulewicz modeled a glider from an image he found on the Internet and McKinley laid out the flight path. The glider was composited in the scene using LightWave and a film grain plug-in to match the original shot.

The challenge was the glider shadow. McKinley came up with an ingenious solution.

BY DICK DE JONG
AND MOLLY DINKINS

He used a clone of the glider for the shadow and then put bones in the wings to simulate the shadow conforming to the terrain.

McKinley describes Dziadulewicz as "one of the best modelers I've ever seen. It's amazing how fast he is." Dziadulewicz displayed this skill for a recently completed project for "Runaway Trains," a program for the Discovery Channel. He recreated several historical train wrecks, including a 1952 English train disaster that involved three trains and more than 50 cars.

Working from photos and newspaper accounts, Dziadulewicz said, "I had to recreate unwrecked cars from wrecked ones. And I had to deliver the scene in a week and a half."

Thus Radical 3D—yet another young California company—has joined the Hollywood LightWave fleet, meeting the creative challenges on the coast, exploring the CG waters, and expanding LightWave's possibilities for the rest of us in the hinterlands.

Dick De Jong and Molly Dinkins produce
video documentaries and animations for
Multimedia Associates in Austin, TX.
They can be reached at [mma@eden.com](mailto:mmma@eden.com).



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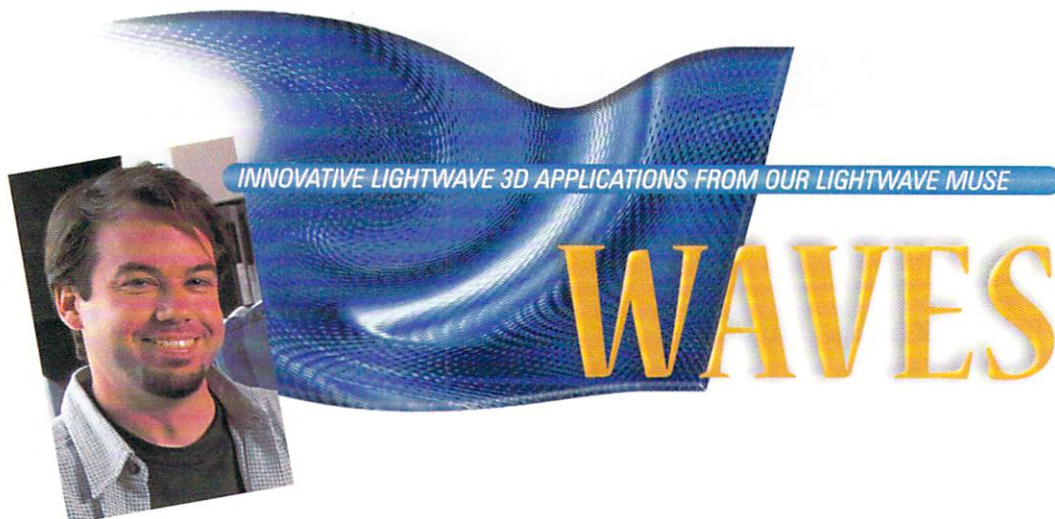


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Circle #218



Solving readers' LightWave problems and giving advice on demo reels.

Reader-Submitted Questions BUG FIXES AND ADVICE

BY JOHN GROSS

Figure 1:
The LightWave Color
Changer plug-in allows you
to change interface colors
with RGB sliders.

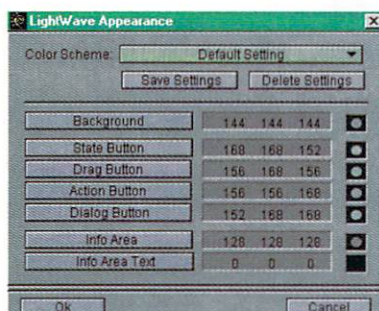


Figure 2:
Black bands appearing when
rendering the Earth with a
bump map are most likely
due to precision limits and
resulting rendering errors.

Q: I am using the Windows/Intel version of LightWave 3D 5.5 and can't figure out where to set the interface colors as you mention in your article in a previous issue of *NewTechniques*.

Is this a feature that might not be available in the Intel version?—Alex Mariño, alexmar@MT.net, Helena, Montana

A: LightWave and Modeler get their colors from a config file called LWCom.cfg, which basically lists the RGB values of the different elements in the programs. You can change this file or, better yet, use a generic plug-in (included with LightWave) called Color Changer (Figure 1) that enables you to adjust colors with RGB sliders. You can also save and load different config choices here. If the LWCom.cfg file is not found, LightWave and Modeler will use their default color choices. As far as I can tell, there is a bug with this plug-in that causes it to save any new configs created to the content directory instead of the working directory in which LightWave searches for the config files. (I have also seen them saved to the root directory of the content directory). Move them from where they were saved and rename them to LWCom.cfg (making sure to place them where the other config files are located). The next time you start LightWave, your new scheme will be used.

Q: I have a very strange bug that I can't figure out. It only happens with a specific scene that I have set up. The scene file consists of the following: I have three planets that I am zooming past and then I approach Earth. The problem happens whenever I try rendering the earth. I have a bump map applied, but I never see it, plus I get large black "bands" that show up on the earth. No matter what values I change, the earth always renders badly. What is my problem? I am sending along an image of my earth planet showing the problem (Figure 2).

—Bradley Seyah, Salt Lake City, Utah

A: I have a pretty good idea what the problem is, but would need a bit more information about your scene. First, you should make sure that your model is okay. Check it out in Modeler to make sure there are no non-planar or flipped polygons. Chances are, since it is most likely a sphere object, that it is fine. Next, load it all by itself into Layout and try rendering it.

As to what you should put on a reel—that depends on what kind of work you are looking for. Depending on the size of the company, a little variety is appreciated, plus it helps show your range.

Companies don't always work on the exact same show/feature unless they are a smaller company and that is their only gig. Good character animators are always in demand, so if you have any character animation stuff that looks good, I would certainly include that.

My guess is that it will render fine. If not, you have a problem with your object. However, if it renders fine, you are most likely encountering a precision problem.

When describing your scene, you mention that you are "zooming" past planets. Did you create your object to a very large scale and are you zooming through a very large space? If so, chances are LightWave is reaching the limits of its precision and you are starting to see rendering errors. Are you also ray tracing or shadow mapping? Also, make sure that you don't have a very large planet object, possibly far away from Layout's center, and have it parented to a Null that is scaled up or down (or the object itself is scaled a lot). All of these things, when added together, help you to reach the end of Layout's precision. Errors in rendering, often with shadows, seemingly missing polygons, or bump maps that won't show up, are all symptoms of running out of decimal points. I believe that Layout is precise to six digits. Anything past that and you run a risk.

To check in your scene, try moving your earth object to 0,0,0 and render it. If it renders fine, you have found your problem. Make sure to check for scaling factors, too. The lesson here is that, although it is usually accurate to model to scale, there are instances where it is not practical and error-inviting to do so. DNA strands and space elements are two good examples.

Q: I am an aspiring computer animator. I have two years of experience with LightWave 3D and am putting together a demo reel. I was wondering what I should put on it. I was thinking about making a mini-movie. Is this a good idea, or should I put a few different animations on it? I am leaning toward the mini-movie. Could it get me a job? I would appreciate any response.
—Richard Sarasua, basco1@cyberhighway.net

A: First and foremost, only put your very best work on a demo reel. If you only have a bit of stuff that is really good and the rest is mediocre, I would opt for only putting the very best on and explaining in a cover letter that the reel is short, but you just wanted to show the work that you are capable of. From my point of view, I would rather watch a really short good reel as opposed to a long bad reel.

As to what you should put on a reel—that depends on what kind of work you are looking for. If you are trying to get a job with a company that makes game graphics, I would suggest putting some game-type graphics in there. If you are going for a job with a company like Digital Muse, I would like to see stuff that relates a bit more to things that we work on. That does not mean, however, that you should only send stuff that is exactly like the work that we do. Depending on the size of the company, a little variety is appreciated, plus it helps show your range. Companies (for the most part) don't always work on the exact same show/feature unless they are a smaller company and that is their only gig. Good character animators are always in demand, so if you have any character animation stuff that looks good, I would certainly include that.

My feelings about mini-movies are that unless they are done very well, they are usually kind of painful to sit through. It's hard to judge what the viewer of the reel

will like. In my case, if I'm not impressed with the beginning, I usually don't get that impressed having to sit through the middle and the ending. Out of all of the reels that I have received (and I've received a lot), the dozen or so that consisted of mini-movies were not that great. One or two of them were impressive.

Q: I am running LightWave 3D and notice that it occasionally loses track of my morph targets. I never know when this happens and cannot for the life of me get it to repeat on any consistent basis. HELP! —Will Sawyer, Normal, IL

A: This was one that really perplexed our animators for a while. Here's what's happening: There is a very strange bug that sometimes happens when clicking on certain buttons that close one panel and open another (such as Use Envelope). The bug was causing bogus pop-up menus to appear at the mouse location, sometimes changing settings such as the current object's morph target. You were most likely in the Morph envelope and clicked on Use Envelope. The pop-up appeared with the first default choice of (none) and when you let go of the mouse, it reset your target to (none). It happens so fast that it's hard to see.

Working around this bug is very easy. Next time you are exiting the envelope, hold the mouse button down on Use Envelope and see if a pop-up appears. If so, you can use it to select your target, or easier yet, simply move it off of the pop-up and let go. This will cause no selection to happen while still exiting you back to the original panel.

By the way, I hope that you are using an Alpha-based workstation, as this is an Alpha-only bug. NewTek is aware of the problem and should take care of it.

John Gross is co-owner/creative director of Digital Muse and can be reached at john@dmuse.com.



Flying High

TIPS, TECHNIQUES, TUTORIALS AND SHORTCUTS FOR YOUR VIDEO TOASTER FLYER PROJECTS

BY JOE
TRACY

Questions Answered and THE TALE OF GHOSTS AND CLONES

Cloning a video image, making objects glow, and creating ghosts, along with more solutions to reader questions.

COMMENTS OR
SUGGESTIONS

email:

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Welcome to another edition of "Flying High!" It is my sincere hope that you have been having much success with your Video Toaster Flyer system. I've received a number of questions since my last column, so let's get right to it:

Q: *While back when I loaded the Flyer software, I was given the option to have the Flyer start when my computer was booted. I said "no." I want to change that now, however. Will I have to rerun the install program to do that?*

A: No. There is a much easier way. You can change this command at any time, without running the install program, by doing the following:

STEP 1: From your Workbench screen, double-click on your Workbench drawer then double-click on the WBStartup drawer.

STEP 2: Now find and double-click on the drive icon that contains your NewTek files. Double-click on the NewTek drawer, then the Programs drawer. You should see your StartToaster icon. Grab it and drag it over to the WBStartup drawer.

That's it! Now every time you start your computer, the Flyer software will automatically load. To reverse this process, open your Workbench drawer, then the WBStartup drawer. Select the icon once. Hold down the right mouse button over the bar at the top of the Workbench screen to access the Workbench menu. Select "Icon" and then "Leave Out." This will automatically move the StartToaster icon to your main Workbench screen so that you can easily start your Flyer from there.

Q: I was watching an episode of "Days of Our Lives" where one of the main characters (Bo Brady) had an "out of body" experience. He was kneeling down and a ghost image of him came out of his body and moved around. Can I do this on the Flyer?

A: Yes, you can. It is the same type of effect used in movies like *Ghost Dad* where the main character was laying dead and a ghost of him came out of his body. Here's how to do it:

STEP 1: Have a friend lie down on a couch or the floor. Have a camera pointed at your friend (zoomed out) and have the camera being run into your Toaster Input 1.

STEP 2: On your Switcher screen you'll see a Freeze button. If it is highlighted (yellow), click on it once to un-highlight it. Make sure that Input 1 is selected on the Main bus and that the camera (which should be on a tripod) and your subject are holding still. Click Freeze.

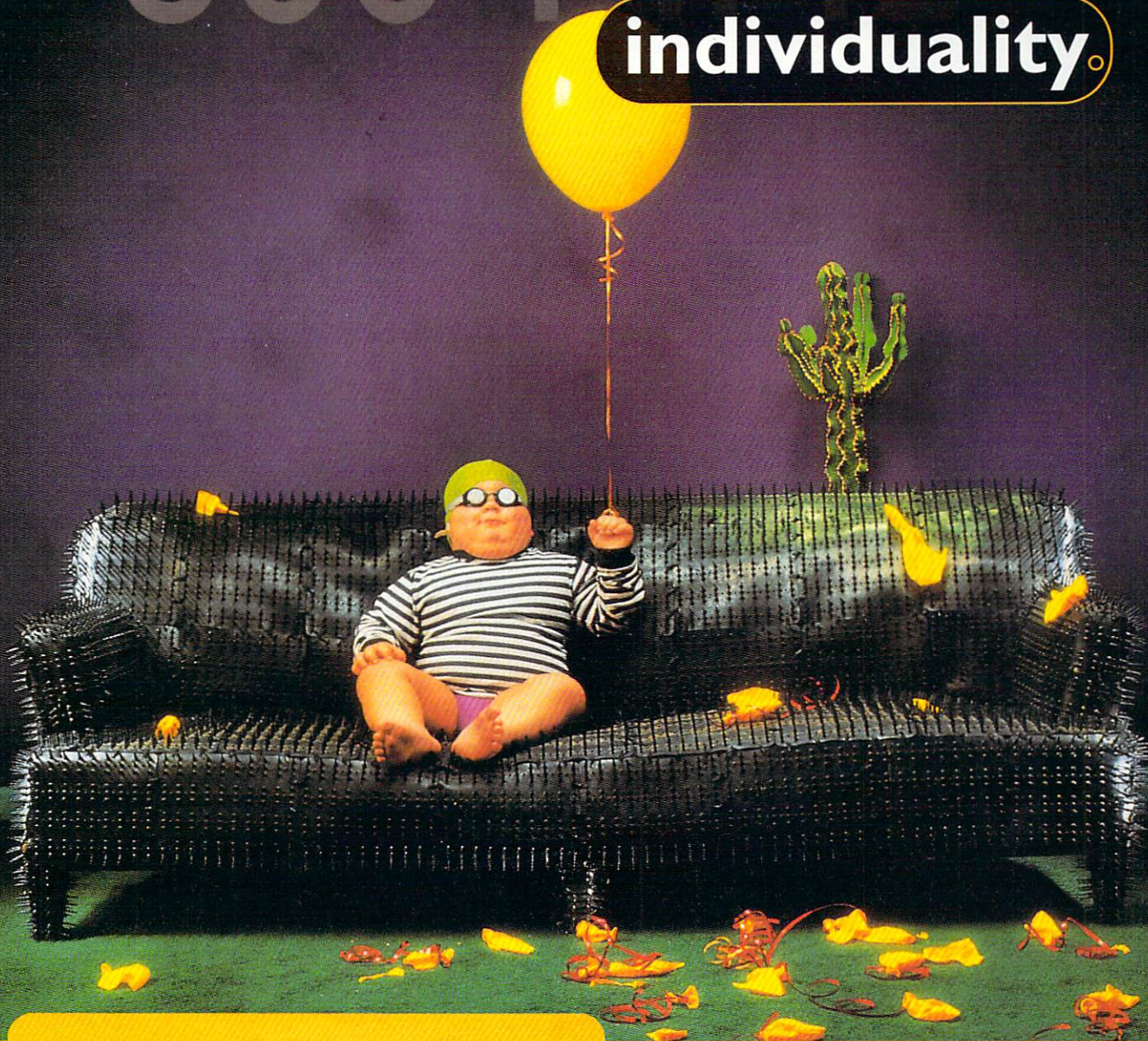
STEP 3: Make sure your subject doesn't move yet. Hit the ~ key on your keyboard to bring up the Abbreviated Record Panel. With the Abbreviated Record panel up, move the T-bar down just more than halfway (see *Figure 1*). Now click on the Record button and have your subject sit up, then stand up and move. You'll see a

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Figure 1

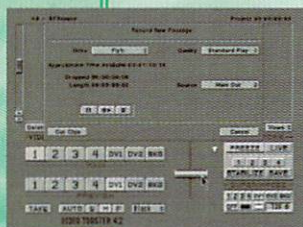


Figure 2



Figure 3



Figure 4

ghosted image of your subject come out of his/her solid body! And you are recording it! The results will look somewhat like Figure 2. Results on this will vary by how much you adjust the fade. The still image will "fade," too, so you will want it more solid. I'll get into more detailed solutions where the still image won't fade in a future column.

Q: I'm trying to create a "video wall" effect where the same image appears numerous times on the same screen. How do I do this in the Flyer?

A: Luckily it's easy!

STEP 1: Go to Project/Files view and navigate to your Effects directory.

STEP 2: Double-click on the Digital folder. Find the effect titled "Infinite Tiles" (third row, sixth one over). Move it up to your project screen.

STEP 3: Return to the Switcher screen. Run footage (or a camera feed) into Input 1 of your Toaster card. Select the T-bar and pull it down until you are pleased with the "video wall" effect showing on your program monitor.

STEP 4: Hit the ~ key to bring up the Abbreviated Record Panel. Next to "Source" select Main Out. You can now record your "video wall!"

Q: I want to create news-style over-the-shoulder keys with text in the box (like you see on the news). How can I do this in ToasterCG?

A: Check out my tip in the "Techniques" column of this issue to achieve that effect.

Q: What happened to the audio that used to be on some of the effects?

A: They were turned off to help squelch a stutter problem they would create in certain playback situations. If you really need those sound effects, ProWave makes a tool called "Steal Audio" (included in RenderFX 2.0) that will retrieve the effect sounds and make them into audio clips.

Q: How do I apply a glow to an object in LightWave 3D?

A: The glow effect was made to work with surfaces, not objects. Therefore, you are applying the glow to a surface. Here's an example:

STEP 1: Enter LightWave 3D. From the top menu, select Objects. Now select Load Object. Click on the Household directory and load the Candlestick. Hit F9 to render it out. Notice it is a candle that is unlit. We'll change that with the glow effect.

STEP 2: From the top menu select Surface. Next to Current Surface is a scroll-down menu. Click and hold it to see the various options (see Figure 3). By utilizing the Glow effect, we can effectively make the Candle Wick look like it is a flame! Select Candle Wick.

STEP 3: Click on Surface Color. Change the values to a bright yellow (R=255, G=255, B=0). Click OK.

STEP 4: In the box next to Luminosity, change the number from 0 to 60. Hit Return.

STEP 5: Near the bottom is a box that says Glow Effect. Click in it so that it is checked. We have now told LightWave

that we want a glow effect applied to the Candle Wick surface. Click Continue.

STEP 6: From the top menu, select Effects. Near the bottom, click in the box next to Enable Glow Effect so that it is checked. In the Glow Intensity box, enter the number 70 (the default is 50) and press Return. Click Continue. Hit F9 to render it out.

The candle now looks like it is lit (see Figure 4). That was achieved simply by changing the color of the Candle Wick, increasing the Luminosity, and adding a Glow Effect to it. You should begin to see the countless ways that using glow effects can spark up your LightWave and Flyer work.

Cloning Yourself

The talk of clones is hot, but the Flyer has had the capability to do it longer than scientists! There are many ways that you can create clones of yourself or objects, even in action scenes. Here are a few for you to try out:

IDEA 1: Point a camera toward a white wall and make sure it is zoomed out. Begin recording a Flyer clip and walk into the picture (from the left) looking down. Stop before you've gone halfway into the scene, and suddenly look up and look shocked, then run away. Stop recording and edit the In and Out points accordingly. Name the clip CloneMe and save it to your hard drive. Now enter ToasterPaint. From the bottom menu select Process. Find the button under the Source Clip heading and click it. Now find your clip on the appropriate drive and load it (Clip Select). There is a pull-down menu

FlyingHigh

next to Process Clip. Access it and select TPMirror L-R. Click Process and take a break! It will take what is on the Left of the screen, flip it around and copy it to the right of the screen. When it is done, you will see yourself enter from both sides of the picture, look at yourself, look shocked, and run (see Figure 5).

IDEA 2: If you have a two-input TBC then you can create an interactive clone of yourself. Set up two chairs, interview style. Make sure the camera is mounted on a tripod and won't move. Record yourself looking at the other chair, like someone was in it, nodding your head once in awhile like you

are listening to the person. Record that to tape. Now run the tape deck output into Input 2 of the Toaster and make sure the camera, which shouldn't be moved or touched, is going into Input 1 (both should be going through your TBC). Go to your Effects directory and from the Soft Edge folder find the Wipe Soft L-R and Wipe Soft R-L wipes. Move them into your project screen and return to the Switcher. Select Input 1 on the Main bus and Input 2 on the preview bus. Start playing back the footage and use the appropriate Wipe Soft effect to split the screen so that it interacts with the recorded footage with the camera view. When it is set right, bring up the

Abbreviated Record Panel and start recording. Sit in the chair and with the other footage playing back start talking. You'll be talking and the other you will be listening! The soft edge will make the transition seamless and people will truly believe that you have a twin!

We have covered quite a few new ideas in this column for you to experiment with. Be sure to stay on top of your competition and help make them regret all the negative reasons they gave for not buying a Flyer themselves! You do have the best non-linear system on the market today and as you continue to experiment and grow with the system, you'll quickly understand why.

Figure 5



Joe Tracy is author of the Flyer Mastery Guide. In early December his second book, Flyer Mastery Guide Version 2.0 will hit the markets (\$129). In late Spring he plans on releasing another book titled The LightWave Mastery Guide for Flyer owners. Look for a Flyer student textbook for educational systems to hit the market this summer. Tracy can be reached by email at jtracy@main.rosenet.net.

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... the batch loading feature of AV8RPro+ makes re-project much easier. (from C.M.)

...thank you for producing a really usable timeline for Flyer. (from K.P.)

I will recommend it whenever possible. (from A.S.)

I really appreciate AV8R. Use it all of the time. (from P.G.)

...lightning quick... a fitting partner to the Flyer (from P.G.)

AV8R rocks. Sure do enjoy using it. (from P.G.)

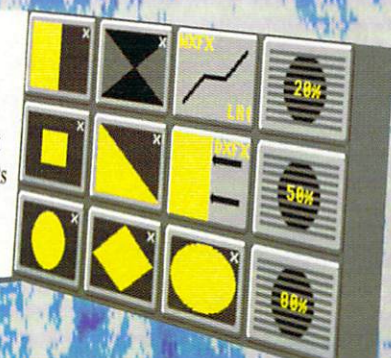
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Digital Muse
DIGITAL MUSE

The MUSE THAT ROARED

Digital Muse has provided effects for shows such as "Sliders" and "Star Trek: Voyager" since opening its doors in 1995. The Digital Muse managing partners, from left: Morris Paulson, John Parenteau, John Gross.

BY
DICK DE JONG
AND MOLLY
DINKINS



Visiting Digital Muse is like slipping through one of those LightWave 3D-created vortexes in "Sliders;" you never know what time period you'll drop into. As you tour the offices, you might encounter a wireframe model of an ancient warship rowing across the computer screen. This Roman vessel, complete with oars, will be rendered to do battle in 4th Century Ireland on the Fox series, "Roar."

PHOTOGRAPHS BY STEVE ESSIG



Special effects for "Roar" range from the dramatic—addition of magic to live action (top two images)—to the subtle—the creation of fire (left) and the appearance of a realistic Roman sea vessel (above left).

Digital Muse created 112 CG shots for the TV mini-series "The Titanic," including this one of the ship as it sinks.

Or you might discover an artifact from a familiar, 24th Century civilization—a Federation Excelsior-class ship. Paramount Studios has loaned this model to the Digital Muse staff for reference in constructing a fleet for a battle royale in this season's "Star Trek: Deep Space Nine." (See the "Friendly Fire" sidebar on page 24.)

Even the name Digital Muse suggests a time-traveling experience. ("Digital" connotes the new millennium and beyond; "Muse" hearkens back to the idylls of mythic Greece). Indeed, everywhere you turn at Digital Muse, you seem to be transported to another time, another world.

In fact, since its inception, Digital Muse has been wrinking the space-time continuum. The company's first major project was "Sliders," the Fox series about four individuals stuck in the throes of a vortex that takes them to parallel worlds and alternate realities. With all the galaxy-trotting and criss-crossing of time lines, it's surprising that Digital Muse is not yet two years old.

The bloodlines of two of the partners, John Gross and John Parenteau, go back to Amblin Imaging, the company Universal Studios and Steven Spielberg formed to create the visual effects for "seaQuest DSV," the TV series

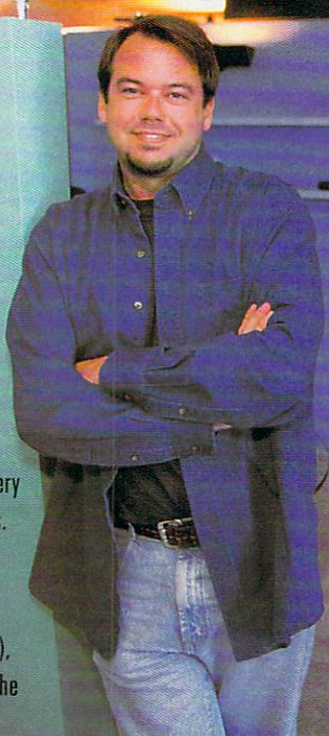
that started production in 1992. Both Gross and Parenteau were there almost from the beginning.

Gross writes the "Waves" column in this magazine and he has documented his Hollywood history in a previous article. The condensed version reads, "Pool boy buys Video Toaster, works hard, learns craft well, and catches the eye of NewTek. NewTek sends him to California to polish the LightWave skills of the artists at the 'seaQuest' graphics division, and he stays."

Parenteau's journey is much more circuitous—though the beginning is familiar. He was in seventh grade when *Star Wars* was

first released and captured the imaginations of boys around the world. Parenteau was no exception.

He was always good at technical stuff. He loved to take things apart to see how they worked, though he admits he was never interested in putting them back together. In elementary school, he ran the projectors; in high school, he lit all the plays. And at USC Film School, he took a stab at directing; but he says, "I didn't like talking to actors." So, he became a cinematographer. After five years in the job market, he realized he was not going to be offered a big director of photography job any time soon. *(continued)*

A man with short dark hair and a goatee, wearing a dark blue button-down shirt and light blue jeans, stands with his arms crossed in a modern office space. The office has blue and purple walls, a tiled floor, and a large window in the background.

Outside Digital Muse, business folks, tourists, and Gen-Xers are skating, shopping, and strolling down Santa Monica's Third Street Promenade. Sunshine, vibrant colors, and a canopy of palm trees celebrate the southern California climate and nearby Pacific. What's remarkable—no, shocking—about Digital Muse's interior is that it reflects that same light, palette, and fauna. Absent is the dark dungeon atmosphere in which, it seems, every animator in sunny Southern California labors.

The offices are sculpted from one large space. At the entrance, you are greeted by friendly people, boy's toys (no Barbies here), and elegance. One look at the tiled floors, the variegated blue/purple ceilings, and the arched Egyptian glass doors, and you realize that a sensitive, creative spirit has been at work here combining time-tested styles with old-fashioned comfort.

That artist is Italian designer Alessandra Madau, who crafted the space using centuries-old Feng Shui principles. (Feng Shui is a Chinese philosophy of design used by emperors and businesses alike to create a prosperous, harmonious environment.)

The "artists' pods" (as John Gross calls them) ignore convention. Desks, shelves, walls, and doors have been reconfigured, becoming a catalyst for animators to explore and create. Arched glass windows, a shape repeated in the doors, break the symmetry of the spaces and permit eye contact between offices.

Morris Paulson's space was addressed with particular attention—all corners were erased. According to Feng Shui tenets, right angle corners snag money and disrupt the flow of business. Even the render farm enhances the overall effect. The computer equipment is placed so the undulating lights can be viewed through the window, adding to the visual play of the offices. Yet to be

finished are the aquarium and the fountain that will muffle the computer hum.

While the offices reflect ancient principles, the Madau-moderne style achieves Digital Muse's contemporary needs: openness, comfort for the employees, and a hospitable environment for guests. It clearly works. Even though water has yet to splash in the fountain, it is already filling with pennies and wishes.

During this period, he learned LightWave in two weeks on a friend's Amiga. And from an idle comment at a party, he made a contact with the "seaQuest" staff. Joe Conti and Tim McHugh, the bosses at the "seaQuest" graphics department, asked Parenteau if he knew DPaint. He said yes. He fibbed. He went home that night and learned it and started work the next day. By 1995, Parenteau was the vice president of Amblin Imaging and Gross, along with Grant Boucher, had won an Emmy for their visual effects work in the pilot of "Star Trek: Voyager."

When Amblin Imaging was dissolved in 1995, Gross and Parenteau decided to form their own company; but first, they asked if their mentor, Steven Spielberg, wanted to be a partner. At the time, Spielberg declined

though he was instrumental in picking the fledgling company's new moniker. Parenteau liked "Synapse." Gross favored "Digital Muse." "Digital Savant" was the compromise name. When Spielberg leaned toward Digital Muse, the company was christened.

The final element of the Digital Muse mix entered the picture when they were looking for financing. They hired Morris Paulson, an entertainment lawyer, to represent them in their dealings with an investment group from Phoenix. The deal never worked out, but Paulson stayed on and became the third partner in Digital Muse.

"Each partner has his strengths and we don't question each other's skills. That allows us to separate ourselves from a lot of responsibilities and concentrate on our areas of expertise."

Paulson describes their working relationship: "Each partner has his strengths and we don't question each other's skills. That allows us to separate ourselves from a lot of responsibilities and concentrate on our areas of expertise." Paulson is the financial expert and he was instrumental in negotiating a great deal

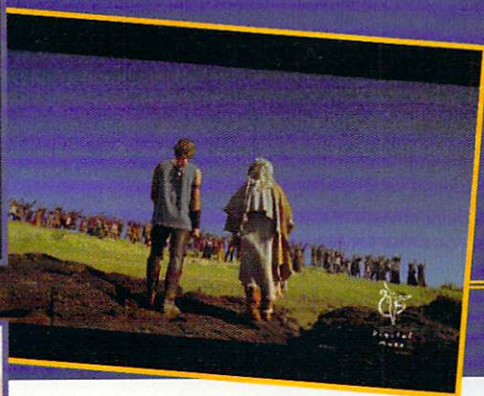
John Gross within the creative space of Digital Muse. The studio is designed with Feng Shui principles to ensure a harmonious and prosperous working environment.

THE ART AND SCIENCE OF SPACE

A castle Digital Muse created on the banks of the lake where there was none before in "Roar."



Digital Muse delivers about six to eight shots in each episode of "Roar," most of which are designed not to be noticed.



Left: LightWave was used to create CG water for every water scene in "The Titanic" mini-series.

following animation events to your viewing calendars.

Sliders

With its cast slip-sliding forward and backward through parallel universes, "Sliders," the Fox TV series, seemed the perfect vehicle for Digital Muse's talents. The peripatetic Ken Stranahan spent seven months supervising the creation of various creatures beginning with nine shots of a dinosaur that had to be completed (built, textured, and animated) in three weeks.

For 25 episodes during the 96-97 season, LightWave critters consumed, or succumbed to, protagonists. Inspired by the movie du jour, "Sliders" featured LightWave natural disasters, entomological aberrations, and marauding reptiles. (For the eagle-eyed viewers of reruns, watch for David Lombardi's CG character to punch out the dinosaurian carnivore's snout before disappearing down its gullet.)

Fox recently dropped "Sliders," but the Sci-Fi Network picked up the show and has ordered new episodes, but with a greatly reduced visual effects budget. Digital Muse has decided not to continue with the series.

Star Trek

"Star Trek" holds a special significance for Digital Muse. The first project that the studio landed was the "Deadlock" episode of "Star Trek: Voyager," in which a divergence field creates a duplicate Voyager and crew. At the same time, the ship is being attacked by Vidiiaans. Digital Muse artists created a number of Voyager shots and designed the Vidiian ship.

with Universal for all the high-end computers left from the inventory of the defunct Amblin Imaging.

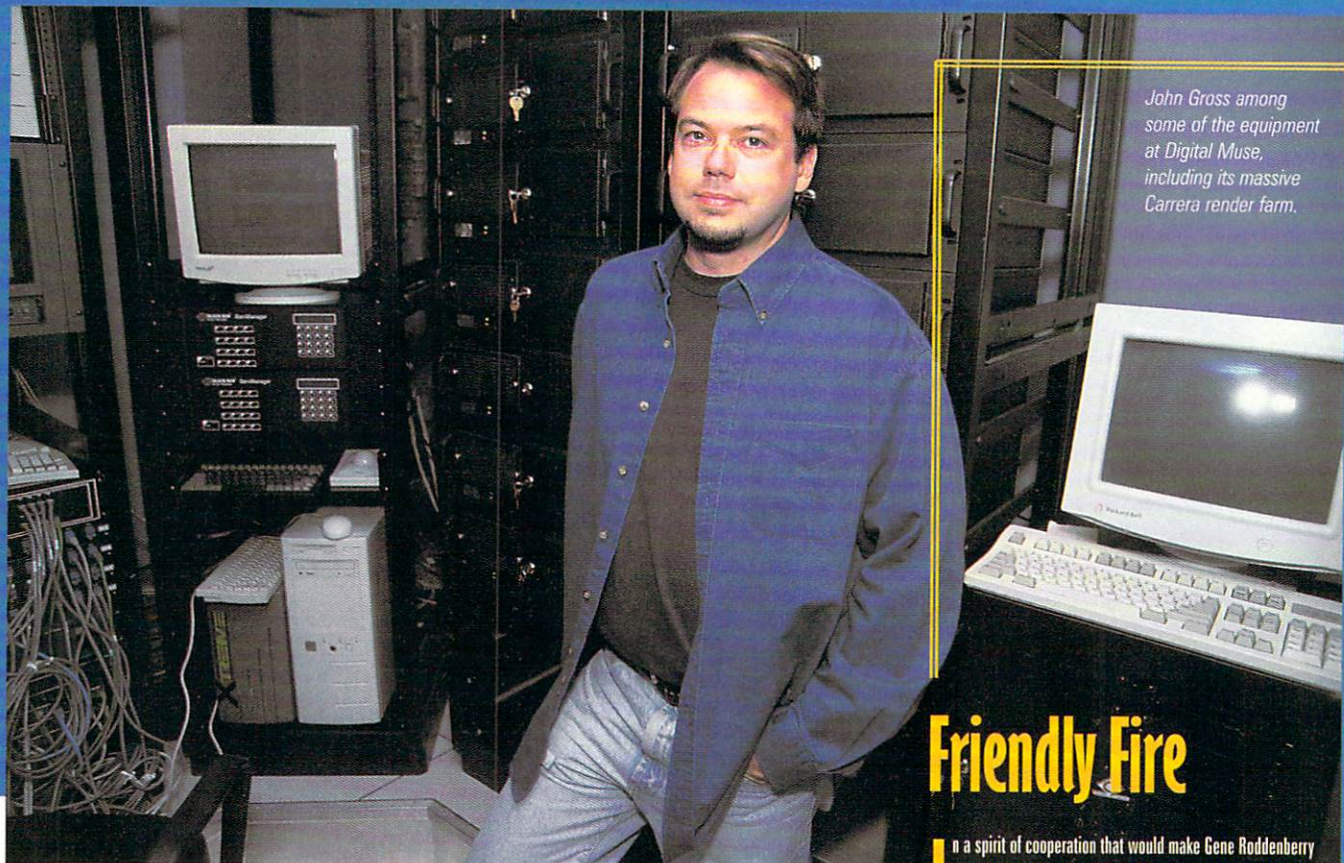
In February of 1996, the computers went upstairs in Gross' duplex in Beverly Hills and Digital Muse started rendering LightWave scenes. Right away, they landed a couple of "Star Trek: Voyager" episodes and the *Star Trek: First Contact* movie trailer. The one problem was that the computers kept tripping the electrical breakers at the duplex, so they could only run eight computers at a time.

The solution was to rent a warehouse in Glendale, but the tiny crew was dwarfed in the 7,500 square-foot space. They also felt too far away from The Business, so Digital Muse's four-person staff moved to Santa Monica. As projects like the "Sliders" TV series rolled in, the staff quickly expanded to 25 and the computers grew to more than 30 333MHz Carrera DEC Alpha-based machines.

The office was one big open space with no walls between the desks. The layout facilitated the quick exchange of information and tips. As David Lombardi describes it, "If you ever had a question, you could 'prairie dog' it and somebody would notice you." But as the staff expanded, the space dubbed the "Family Pit" was becoming as crowded as a mosh pit at a punk rock concert.

So in June of this year, Digital Muse moved to the third floor in the same building and began creating a new home for its family of artists. To accommodate the flexible nature of the visual effects business, they sublet small spaces to related businesses. Now, the family is ensconced in its new digs, living and working in harmony (see "The Art and Science of Space" sidebar on page 22).

For the short time Digital Muse has been in business, it has assembled an impressive list of credits. For LightWave watchers, add the



John Gross among some of the equipment at Digital Muse, including its massive Carrera render farm.

Friendly Fire

In a spirit of cooperation that would make Gene Roddenberry proud, Digital Muse and Foundation Imaging are collaborating on a "Star Trek: Deep Space Nine" conflict of galactic

proportions. Paramount has commissioned these two LightWave 3D houses to stage the battle when the Federation fleet returns to liberate Deep Space Nine from Dominion dominance. In the episode titled, "Sacrifice of Angels" (scheduled as No. 6 this season), the producers envision up to 600 Federation ships in close quarters combat with a Dominion armada twice that size.

At Digital Muse, Bruce Branit is supervising the effort that includes modeling and texturing Reliant and Excelsior class ships. Nearby is the dream come true of every boy who epoxied model spaceships—a three-foot long, fully detailed model of a Federation starship. Telephoto photographs of the ship will be used to create texture maps for the LightWave model that is accurate down to the fillets on the nacelles.

Over at Foundation Imaging, Mojo is overseeing the LightWave building of a Cardassian warship and fighter, and a Klingon cruiser. In all, he figures that Foundation will do seven or eight different 3D models. Some will be based upon miniatures, others will be translated into LightWave from the Wavefront format.

Another participant in this scenario is Image G, which will be adding its miniature magic to the mix. Image G is the visual effects company that has been providing motion control work for the Star Trek franchise since the beginning of "Next Generation."

At press time, the logistics of how all these elements will be integrated hadn't been worked out. But the finished product should be monumental and worthy of viewing on a giant-screen TV.

Digital Muse has continued to work on both "Voyager" and "Deep Space Nine" episodes, though it doesn't have an exclusive deal with either show. Currently, Bruce Branit and his team are creating the visual display for the new astrometrics set on "Voyager."

"Star Trek" veteran Rick Sternbach has sketched out a map of where the Voyager is in the galaxy and where home is. Branit is translating the map into a full 3D representation of the galaxy. (Here's a hint to those trying this at home: Don't attempt to model the galaxy to scale—LightWave's Layout can't handle it. Branit settled on 2mm per light year.)

Roar

"Roar" is the Fox series that premiered last summer about Conor, the Celtic prince defending his island against the evil Queen Diana and the looming Roman invasion. Once again, Digital Muse artists go back in time for fact and inspiration. The twist to this production is that it's in Australia. "Eighteen hours ahead of us and 10,000 miles away," as visual effects supervisor Branden Smith describes the situation.

Smith, who was born in Australia, spent the first six weeks on the set informing the crew how to shoot the effects shots so that Digital Muse could efficiently create the visual effect. "We would prefer to have someone down there

the whole time," says Smith; but the budget doesn't allow it.

Smith estimates that Digital Muse delivers six to eight shots a show, but only two might be identifiable. Most of the effects are designed not to be noticed. For example, the original live shot of the hill on which Diana's castle sits is full of production trucks and vans. With a little LightWave here and a lot of Henry compositing there, the final scene reveals a fine castle sitting on a hill of pristine grass next to a sea of crashing waves.

The Titanic — The Mini-Series

Not to be confused with the soon-to-be-released James Cameron movie, Digital Muse worked on the TV mini-series starring George C. Scott that aired last year. Water was the operative word here. All the shots included LightWave-created water, whether it be ocean, waves, ice, or rain. Senior animator Bob Pepler, a member of the Titanic Society, was the perfect choice to build the ill-fated ship. As a history buff, Pepler went crazy when fiction clashed with fact. For example, in the TV ending, survivors arrive in New York harbor on a cheerful sunny day when, in truth, it was a miserable stormy night. Completed in four months, Digital Muse's 112 CG shots of vessels, water, and people looked stunning and made impressive TV.

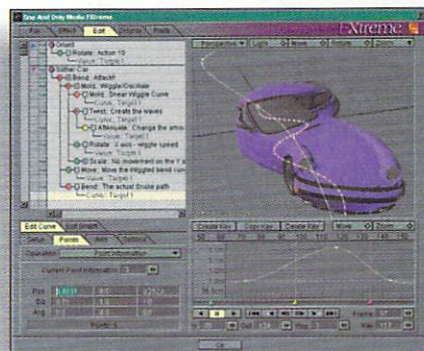
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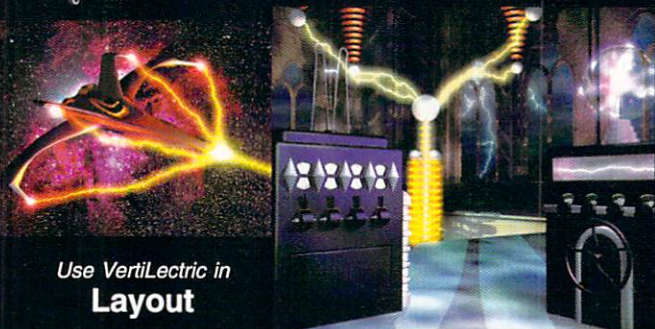
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The Muse That Roared... (cont'd from page 24)

Digital Muse-created effects sequences for a Hercules/Xena theme park interactive presentation and for the "Small Potatoes" episode of the "X-Files."



The Devil's Advocate

For the movie starring Al Pacino as the fiery one and Keanu Reeves as the young lawyer with the client from Hell, Digital Muse reconstructed in LightWave the exterior of the Devil's home. The New York City apartment building used in the original tracking shot did not have that certain "je ne sais quoi." The challenge for Smith and Branit was to convert the edifice into an elegant but foreboding residence while staying true to the look of the first two floors of the original building. The original shot used a wide-angle lens and a plug-in had to be specifically designed to recreate the fisheye distortion. The dual irony of this project is that in the end, the distortion was abandoned and the LightWave work has been composited so seamlessly that you'll never know the building wasn't real.

The X-Files

"The producers of 'The X-Files' expect subtle, high-end, seamless artistry," says Parenteau about his experience on the episode, "Small Potatoes." They were very particular about the look of the morph between shape shifter Eddie Van Blundht and Fox Mulder. Using Elastic Reality software for the morph and Quantel's Henry hardware for the 2D compositing, the Digital Muse staff tweaked the effect to utter believability.

For the same episode, Mark Kochinski designed the vestigial tail that wagged so

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Mike Stetson, Animator, Foundation Imaging

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Adding blood to a blade in action is one of the subtle effects Digital Muse has created for "Roar."



Digital Muse created some of the effects for the new James Bond Tomorrow Never Dies movie trailer (middle), as well as worked on the movie Spawn (bottom).

cutely from the baby's bottom. The original shot had tracking points on the baby's back-side which were matched when the LightWave tail was animated. To make the effect seamless, soft texturing was applied as the tail was composited in Henry.

Hercules/Xena Magic of the Gods Theme Park Attraction

This is one of those odd Hollywood circumstances. The visual effects for both the "Hercules" and "Xena" TV series are done by Flat Earth Productions. But when it came time to produce an interactive presentation for the new Hercules/Xena attraction on how the effects were done, Digital Muse was chosen. Perhaps it is a bit of divine intervention seeing that both Hercules and the Muses are offspring of Zeus.

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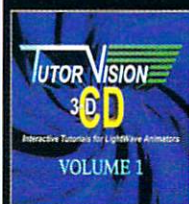
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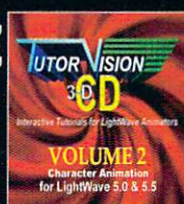
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TEKMASTERS

MEET THE INNOVATORS OF THE INDUSTRY—PAST, PRESENT, AND FUTURE

Foundation Imaging's Ron Thornton: RIGHT GUY, RIGHT TIME

EDITOR'S NOTE:

Ron Thornton has been pushing the boundaries of LightWave 3D ever since its birth as part of the software package that NewTek bundled with the first Toaster. His breakthrough work on the syndicated TV series "Babylon 5" demonstrated to the Hollywood community that LightWave could produce awesome results. For his past achievements and continuing accomplishments, Thornton is being honored with the first-ever LightWave Lifetime Achievement Award at this year's NewTek Expo. We caught up with the soft-spoken Thornton at Foundation Imaging, the visual effects house that he founded with old friend, Paul Bryant.

NewTekniques: We know that you grew up in England. Tell us something about your history, prior to LightWave 3D.

Thornton: As a kid, I always built model airplanes that my dad would buy me. Later, I worked at Gatwick Airport as a flight inspector. I wanted to be a pilot and was trained, but I found out that it was a dead-end job. The pilots were just doing paperwork at the office, only it was 30,000 feet off the ground. The plane flew itself. I'm a tactile person and it wasn't the right job for me. Anyway, I'm not a uniform wearer.

One day, an air hostess took me to see *Alien* in London. I don't usually like shock movies, but I was amazed to realize that someone actually made money from building spaceships. I quit my job and used the unemployment benefits to buy materials to make models. A spaceship I modeled got me a job at the BBC where I worked on a great gamut of programs like "Dr. Who."

During that time, I was traveling back and forth from London to L.A. where I met David Stipes. David invited me to work on the movie *Real Genius*, a science fiction comedy starring Val Kilmer. It was great fun. I even got to work on one shot with David Allen, who is a genius in special effects.



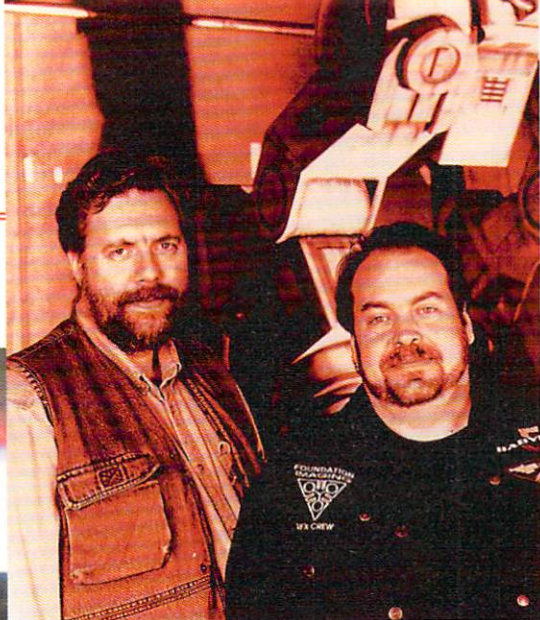
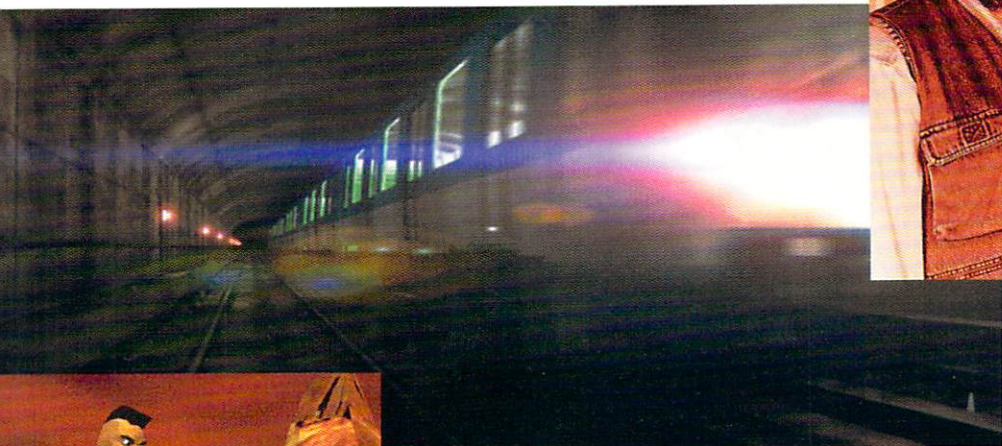
Above:
Ron Thornton of
Foundation Imaging

Right:
Flying his
Russian Yak-52.



A tunnel scene from the upcoming movie Jackal.

Thornton (right) with good friend and co-founder of Foundation Imaging, Paul Bryant.



NewTechniques: How did your career in LightWave 3D begin and how did you get involved with LightWave's first syndication success, "Babylon 5"?

Thornton: I was working in Canada as the model shop supervisor on a show called "Captain Power and the Soldiers of the Future." It was there that I met the future producer of "Babylon 5." Also, a brother of a guy in the shop worked with an Amiga. I went back home and talked to my next-door neighbor, Paul Bryant, about the Amiga. It so happens there was an Amiga Expo in L.A. the next weekend and we went. We were so impressed—it was an amazing machine—that we each bought one. I played around with it, but there were only rudimentary 3D programs that did not render good photorealistic results.

When NewTek released the Toaster with LightWave, I bought it and started pounding away at it. I thought, "If it can do what I think it can do, I have to prove it." I took a month to figure it out. I remember that I didn't know that I had to save the object to save its texturing information. So every time I reloaded a

scene I would have to re-texture the objects! I took a spaceship I designed in the real world and tried to build it in the computer. When I rendered it in high resolution, it looked real—very real. Everyone who saw it was blown away. Soon after, I was doing tests for "Babylon 5." The tests helped sell the concept as a series.

NewTechniques: Would you call "Babylon 5" your greatest achievement to date?

Thornton: Creating all the visual effects for one TV show was definitely a big challenge. It was something I dreamed about and I'm really proud of the work.

NewTechniques: In short, why was Foundation Imaging no longer contracted to do the "Babylon 5" effects after the third season?

Thornton: "Babylon 5" breached their contract. They had committed to the life of the series. We threatened a suit; they paid up; and that's it. It was devastating to be betrayed by friends.

NewTechniques: Were your talents self-taught or was there someone who was an inspiration to you?

Thornton: I'm very much self-taught, but a lot of people inspired me also. Among them, Ron Cobb, (the artist who designed the ship in *Alien*), Bill Pearson, (the model maker in England who worked on *Outland*), and David Stipes (currently the visual effects supervisor on "Star Trek: Deep Space Nine") who led me in to this whole business in the first place.

NewTechniques: What are some of the projects you've recently been involved with and which have been most challenging?

Thornton: *Jackal*, (the soon to be released Richard Gere/Bruce Willis movie) has been the most challenging project because we have to seamlessly cut the effects into the live action shots. We have to exactly match the lighting, color, space, contrast, and aspect ratio of the live action. "Babylon 5" was dead simple compared to this.

NewTechniques: Didn't Jackal allow you to get back to modeling?

Thornton: Yes, I did the original tests of the train in the tunnel. I don't model as much as I used to. Foundation has become this beast: We spend an awful lot of time feeding it and not as much riding it. Though, I am starting to
(continued on next page)

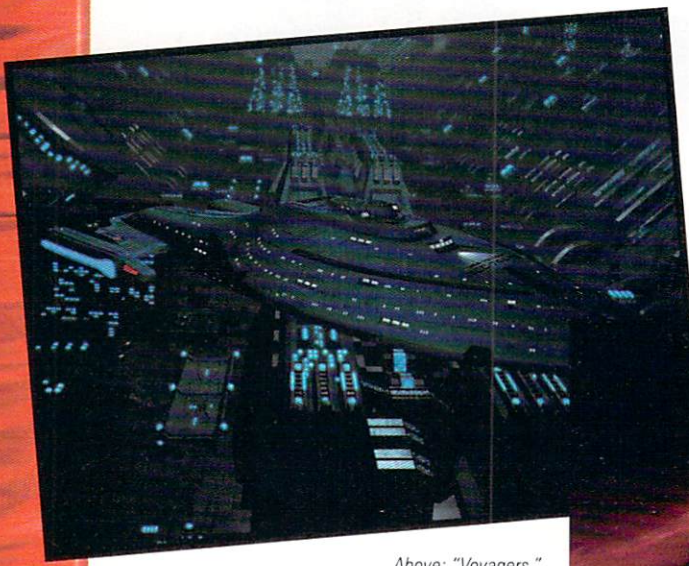
Animation work from Foundation—
Above, top: A scene from the Steve Oedekirk comedy special.

Above, bottom: A scene from Batman vs. Mr. Freeze/Subzero

Below: Thornton with Jeff Luther, next to his Russian Yak-52 airplane.



TEKMASTERS



Above: "Voyagers."
Right: A Vorlon warship.

Foundation Imaging's Ron Thornton: RIGHT GUY, RIGHT TIME

(continued)

build a new ship this afternoon for "Star Trek." It's a massive gun ship.

NewTekniques: We have seen the spectacular evolution of LightWave on television and on the big screen over the past few years. It is well-known throughout the industry that you are one of the main reasons for this. Do you think LightWave would be as credible as it is today had you not been there?

Thornton: If I hadn't done it, someone else would have. I'm not the only person with ideas. I was just the right person at the right time.

NewTekniques: What are the main reasons that you choose to use LightWave rather than other well-known animation solutions?



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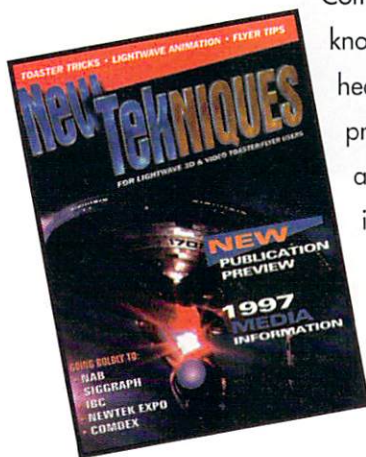
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Thornton: We have been involved with NewTek since the beginning and we have a great relationship with them. We've helped in the development of LightWave and they've been responsive to our needs. When we talk to them about new features, we tend to think about what will be useful not only to us but also to others.

NewTekniques: You've produced a number of tutorial tapes, like "Cinematic Visual Effects," for LightWave animators to learn some of your techniques. What is the best advice that you can give to someone just starting in LightWave?

Thornton: Buy my tapes. (chuckle) Watch a lot of movies. Learn about composition, pacing, and lighting.

NewTekniques: Where do you see yourself five years from now?

Thornton: Retired. Maybe not. We're definitely making the move toward making Foundation a production company rather than an effects company. We want to create products and be more self-sustaining.

NewTekniques: "Hypernauts" (a Foundation Imaging-produced Saturday morning TV show) was a start.

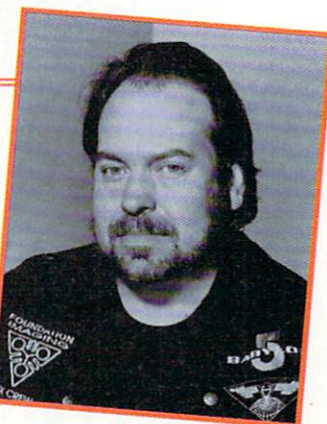
Thornton: "Hypernauts" was very much the start. Right now, we have several projects in development. One is a prime-time comedy—a comedy "X-Files." There's a cable show that is a futuristic adventure,

a wholly animated show. We want to be the creators and executive producers. If we can watch over a show, we can put more into it.

NewTekniques: Outside of work, what type of activities do you like to do?

Thornton: My passion is my Russian Yak-52 airplane. I take it to air shows and fly it whenever I can. I clean it a lot—it's very relaxing. When I'm 60 or so, I'll probably be one of those guys who hangs out at airports, tells stories, and can't shut up.

NewTekniques: In closing, what words of wisdom can you give to those who have followed your work throughout the years?



Thornton: Don't get too wrapped up in the technology. Concentrate more on the arts.

EDITOR'S END NOTE:

Special thanks to Dick De Jong and Molly Dinkins for their work in interviewing Ron Thornton for this piece.

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LightWave 101

A UNIVERSITY-LEVEL COURSE WITH INCREASINGLY DIFFICULT LIGHTWAVE TECHNIQUES



BY SCOTT
WHEELER

Part Three:

FINISHING THE DNA STRAND

The final installment in
this first level of
LightWave courses
—"LightWave 101."

Next year:
"LightWave 201."

Welcome to the final "LightWave 101" class before you move to the next level. There is a lot of ground to cover, so I will not be able to go over some things as thoroughly as planned. As always, feel free to email me for more clarification. I will be posting the last article and the objects from this article on my Web site: www.uberfx.com.

To start the scene creation process, we are going to load in the elements and place them in position prior to surfacing them. This is a little backward from the way you would do it if you were to texturing each object. But, because I already have worked out the surfacing, we will work in this manner to save time.

Let's load in the DNA strand:

1. Open up the Objects Panel and click on the Load Object button. Find where you placed the DNA strand that you

made in Modeler and double click on it. Close the Objects Panel [p]. You should now have one DNA strand laying flat. Select Camera View [6] and your view should look something like Figure 1.

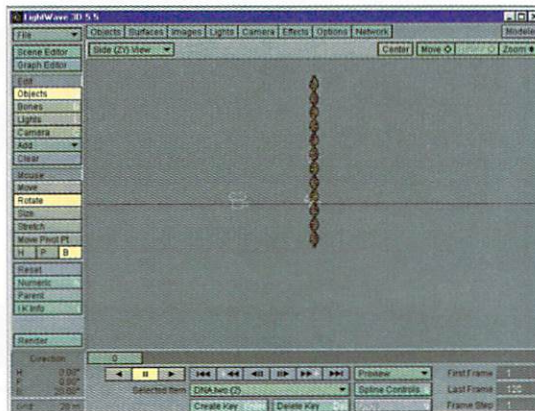
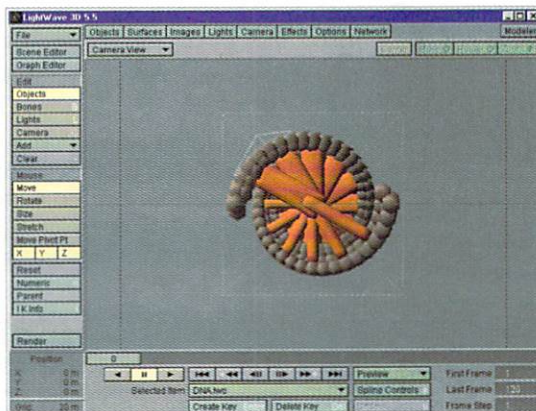
Because the scene we are going to lay out is set vertically, we need to rotate the DNA object so it is oriented vertically.

2. Start by pressing the space bar once so that Rotate is highlighted in the Mouse control area on the left side

of the Layout window. The easiest way to rotate an object on a given axis to a precise angle is to use the numeric requestor, so press [n] to bring it up and enter 90 for Pitch while leaving the other values at 0.

Create a keyframe for the DNA at frame 0 by pressing [enter] twice. Once will bring up the create keyframe requestor and the second will create the keyframe. We have now locked the DNA in this

Figure 1
(left) and
Figure 2
(right).



position until another keyframe is set for it. Since we want to leave it in a vertical orientation for the length of the animation, this keyframe defines its final position as well.

3. We need to extend the length of our strand by adding another to it and chaining them together. Make sure you are in object edit mode [shift - o] and press [p] to bring up the object panel. Press Clone Object and type 2 in for the number of clones. Press [p] to close out the Objects panel.

We are now going to parent the second DNA to the first. This will allow us to move one DNA and take its clone along for the ride. Even though we are not going to move the DNA it's a good practice to fall into because it will make life easy for you if you have to make small changes to the scene at a later date.

4. We will do our parenting in the Scene Editor, so click on the Scene Editor button in the upper left of the Layout window. This panel shows all the elements that make up your scene and is a good place to get a feel for the overall scene layout.

5. Click on the DNA.lwo (2) object to select it. It should turn yellow. Click on Parent on the left side to pull up the Parent requestor. Click on the pop-up and drag the highlighted area down to DNA.lwo (1) and release the mouse. If you now look in the Scene Editor you will notice that the DNA.lwo (2) object indented over to the right and a minus sign appeared next to DNA.lwo (1). This tells you that DNA.lwo (2) is now a child of DNA.lwo (1). Close the Scene Editor [p] to return to the layout view.

6. To get a side view of the scene press [3]. You should see a yellow box around DNA.lwo (2). This lets you know that is the object currently selected. To move it to the end of DNA.lwo (1) we need to activate Move mode. You do this by pressing the [spacebar] until Move is highlighted. Bring up the numeric requestor [n] and enter -55.4 in for the Z-axis. This will move the DNA to the junction point of the two strands. We need to add a slight rotation to DNA.lwo (2) so that it lines up perfectly, so select rotate mode [space bar] and numeric input [n] and enter 20 for Bank leaving the other values alone. Zoom back [,] until you can see the two strands and your screen should look like Figure 2.

7. Now is a good time to save our scene [shift - s]. Pick a spot to save it and name it DNA. I always make it a habit to save after a few changes so that if something goes wrong I have not lost half a day's work.

8. Make sure you are in Object mode [shift - o]. Hit the [up arrow] until DNA.lwo (3) is highlighted. Cycle through the Mouse functions [spacebar] until Move is selected and bring up the numeric requestor [n]. Enter 6.45 for X, and -20 for Z. Leave Y at 0. Hit [enter] twice to set a key frame for the object at frame 0.

9. Now that we have the placement of our strands, let's add some life to them by giving them a slight rotation. Change mouse Mode to Rotate [space bar] and bring up Numeric input [n]. Enter 160 for Bank and leave the other values alone. We now

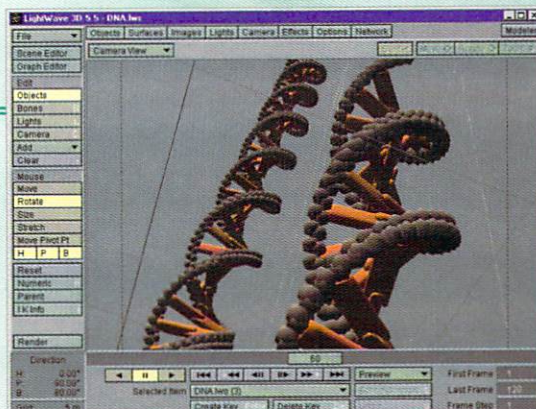


Figure 3

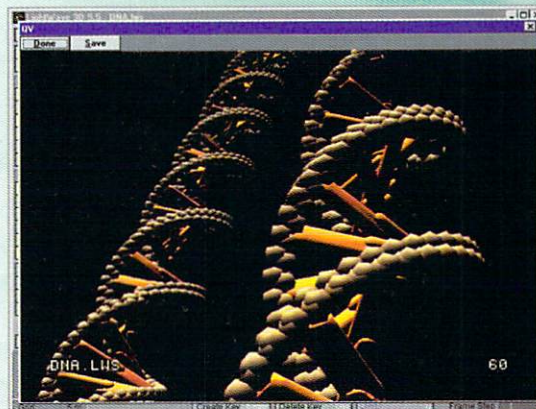


Figure 4



Figure 5

need to make a key frame at the end of our animation [enter]. Type 120 in the Create Key at Field and hit [enter] again. We can verify that we have done the correct thing by moving to the next key frame [shift - right arrow]. This should hop you back and

forth between 0 and 120 and you should see a slight rotation on the DNA strand when you do. Repeat the rotation steps on DNA.lwo (1) so that both strands make a 160-degree rotation in 120 frames. Now is a good time to save the scene again [shift - s].

(continued on page 36)

LightWave 101

To make the animation dramatic we want the DNA strands to rise in frame. Since we haven't added motion to our strands, other than rotation, we can move the camera down to simulate a rising DNA.

Also, since we will be adding several other objects to the scene that should appear to be moving upward, we can perform all this motion with just a camera move and save a lot of animating. After all, time is money, squander it wisely.

10. Activate Camera edit mode [shift - c] and pull up the Camera Panel [p]. Change the Zoom Factor from the default setting to 4.4 (no reason, I just like that lens size) and close the Camera Panel [p]. Now let's add a little motion to the camera. Enter in the following values for the camera:

At Frame 0 :

X: 1.16 Heading: 12
Y: 16 Pitch: -49
Z: -30 Bank: 12

At Frame 120 :

X: 1.5 Heading: 4
Y: -31 Pitch: -65
Z: -37 Bank: 18

11. Select the Camera View [6] and go to frame 60 [f]. If all has gone well, frame 60 should look like *Figure 3*.

Before we load in the other objects and start surfacing them, let's get the environment set up a little more. We are going to do this in three ways: Lighting, Background colors, and Fog. Let's tackle the Lighting first.

12. Activate Light Mode [shift - l] and enter the Lights Panel [p]. Set the Ambient Color to 255, 255, 0 and the Ambient

Intensity to 10 percent. This will help warm up the shadow areas and give the scene a yellowish tinge.

13. Click on Rename Light and change the name to Key. Next to the Rename Light button is Clone Light; click on this and make one clone. Click Rename Light again and change the name to Kick. We now have two lights in our scene, Key and Kick. Change their values to the following:

Key: Color: 255, 243, 230
Intensity: 150 percent
Kick: Color: 255, 215, 172
Intensity: 40 percent

You will notice that Key is set above 100 percent Intensity. I know this seems a bit odd, but very often certain effects can only be achieved by setting values in Layout above 100 percent. In this case, it is needed to show high-lights on our objects through the fog.

14. Close the Light Panel [p] and return to the Layout View and do a test render [f9]. The image you get should look like *Figure 4*. As you can see, we need to rotate our lights around so our models aren't so front-lit. Enter the following values in for Rotate and set their keyframes at 0:

Key: Heading: 60
Pitch: 30
Bank: 0
Kick: Heading: -137
Pitch: -45
Bank: 0

If you do a test render now [f9] you will notice that the hot areas on the left side of each strand have been reduced, and there is a kick light illuminating the edges of the

left side. I have set the kick light to point in the opposite direction of the Key to add a sense of environmental bounce and to enhance the dimensionality of the DNA.

Let's move on to the next step in the environment process: background coloring. Bring up the Effects panel by clicking on the Effects button on the top button row. We want to pick colors that will blend together nicely and maintain our goal of a yellowish-gold look.

15. Activate the Gradient Backdrop color check box and enter the follow values:

Zenith Color:	122, 78, 22
Sky Color:	245, 232, 197
Ground Color:	245, 232, 197
Nadir Color:	100, 80, 60

The Sky and Ground colors are set to the same value so that the blend line between them becomes seamless. This way you get a smooth spread all the way from the Zenith down to the Nadir.

Next let's add a little fog to the scene to give us a sense of depth. There are three types of Fog that you can add to your scenes: Linear, Nonlinear1, and Nonlinear2. If you select each one in order from the Fog Type pop-up you can visually see the differences in the Fall-off graph to the right of the pop-up. Linear is just a straight line and generates the least realistic looking fog. The two nonlinear fogs add a level of realism by having the amount of fog in the scene ramp up in a curve, increasing the realism by giving the camera a certain space where no fog is active.

16. For our purposes, Nonlinear1 Fog will do the trick, so select that. Enter in the following values for the fog:

Min. Fog Distance: 0m
Max. Fog Distance: 200m
Min. Fog Amount: 10 percent
Max. Fog Amount: 100 percent

17. Check the Backdrop Fog checkbox so the fog uses the gradient color we created as its color.

18. We are now ready to load in the particle objects. Switch to Object Mode [shift - o] and bring up the Objects Panel [p]. Load in the three particle objects we created in the last article. Because we were specific about naming these objects by their particle size, let's change them to those sizes. In the Appearance Options tab at the bottom of the objects panel, there is a pop-up called Particle/Line Size. Change the Particle/Line Size for each of the particle objects to the size in its name (i.e. Particles_Large.lwo gets a Particle/Line Size of Large).

The last object we need to load is the Dome.lwo object we will be using to add some life to the background.

19. After the Dome.lwo object is loaded, turn off all the shadow casting options for the object and close the objects panel [p]. Select the side view [3] and zoom out so that all objects can be seen. Your screen should look like *Figure 5*. Granted, it's not the most exciting image, but at least it lets you check to see if you are on the right track. What you should have is a dome with some particles scattered around and a few DNA strands sticking up into the

dome. Now would be a good time to save our scene.

Let's start the surfacing process with the dome.

- 20.** Open up the Surfaces Panel and make Dome the Current Surface. In order to add some life to our scene, we will give the Dome a Vein procedural texture. The first step is to set the base color for our texture. Enter 122, 97, 58 for Surface color and click on the "T" next to the surface color sample. This opens up the Color Texture Panel. In the Texture Type pop-up select Veins as the procedural Texture Type and enter in these values:

Texture Size:
X: 3m, Y: 3m, Z: 3m
Texture Color: 181, 158, 83
Coverage: 0.2
Ledge Level: 0.2
Ledge Width: 0.3
Bump Strength: 0.1

- 21.** The last step for surfacing the Dome is to turn Smoothing on.

- 22.** Now for the DNA. There are two surfaces that make up the DNA strand, DNA_Inner and DNA_Outer. Enter the following values for those surfaces:

DNA_Inner
Surface Color: 146, 82, 0
Color Texture: Veins
Texture Size: X: 20cm, Y: 20cm, Z: 20cm
Texture Color: 42, 115, 33
Coverage: 0.2
Ledge Level: 0.1
Ledge Width: 0.3
Bump Strength: 2.0
Smoothing: On

DNA_Outer
Surface Color: 146, 92, 23
Color Texture: Crust
Texture Size: X: 10cm, Y: 10cm, Z: 10cm
Texture Color: 114, 99, 49
Coverage: 0.8
Ledge Level: 0.4
Ledge Width: 1.0
Bump Strength: 5.0
Smoothing: On

The last item left to texture is the particle objects. The reason we have them in the scene is to add volume and density. First let's define the basic color and luminosity of each particle object.

- 23.** Enter in the following values for each particle surface:

Particle_Small
Surface Color: 177, 156, 37
Luminosity: 70 percent
Particle_Med
Surface Color: 219, 189, 115
Luminosity: 60 percent
Particle_Large
Surface Color: 123, 99, 49
Luminosity: 50 percent

- 24.** Make sure all other values are set to 0 on each surface.

That takes care of the luminosity and color parts of each particle surface but we still have to blur them out a bit.

- 25.** In the Advanced Options Tab for each of the particle surfaces, enter 100 percent for Glow Effect on each particle surface. When you have finished doing this, close the Surfaces Panel [p].

- 26.** Save the scene [shift - s]. Also open up the Objects Panel and click the Save All



Figure 6

Objects button so that the surface changes we made are saved as well.

Now we can finish preparing our scene for rendering by opening the Effects Panel and selecting the Image Processing tab. From here we will activate the SurfBlurFilter, Set the Glow Effect and Dithering Intensity.

- 27.** For Dithering we want 4 x Normal to add a grainy look. We also want to check Animated so the dither pattern changes on a frame-by-frame basis to simulate film. Enable Glow Effect and Set the Glow Intensity to 100 percent and the Glow Radius to 30 pixels. This will make our particles spread their glow over the scene and help blend the elements together.

- 28.** In the Camera Panel set the Pixel Aspect to D1 (NTSC), Antialiasing to Low, and activate Soft Filter. In the Bottom of the Camera Panel,

activate Motion Blur and Particle Blur leaving the Blur Length at 50 percent.

- 29.** Finally, in the Render Panel we want to activate Trace Shadows. Make sure that Render Last frame is set to 120 and Auto Frame Advance is on. If you would like to speed things up a bit, turn off Show Rendering In Progress. Close the render Panel [p] and go to frame [f] 45. The rendered image [f9] should look like Figure 6.

Congratulations! This session has had a hectic pace, but hopefully it was informative. This is the last course session for "LightWave 101". Next year we will be moving up to "LightWave 201" and will be going over some more advanced features.

If you have any suggestions on what direction you would like "LightWave 201" to take, feel free to email me at uberscott@uberfx.com.



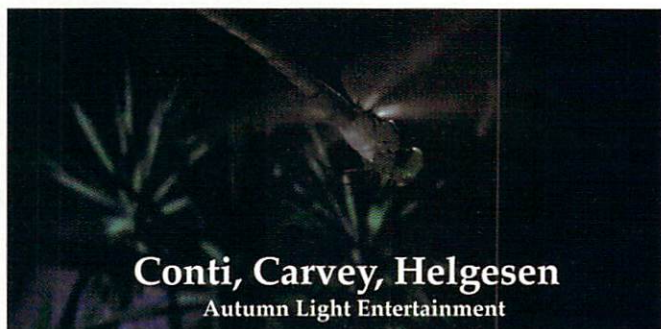
WAVE F/X

LIGHTWAVE SUCCESS IN THE COMPETITIVE TV & FILM F/X MARKET

Two and a half minutes of pure LightWave magic from Autumn Light Entertainment.

BY TOM
WILLIAMSON

Men in Black's Dragonfly Title Sequence ON A WING AND A PRAYER



Conti, Carvey, Helgesen
Autumn Light Entertainment

One of the biggest challenges in the dragonfly sequences was to keep the wings both visible and blurred, without strobing. This was achieved using a number of lighting and animation tricks.

Last December, Alan Munro of Open Films approached Joe Conti, Brad Carvey, and Scott Helgesen of Autumn Light Entertainment with a unique challenge—the entire opening sequence of Barry Sonnenfeld's newest movie. It involved a dragonfly flitting around lazily in a rural scene. Flitting, that is, until it meets an untimely death thanks to the sworn enemy of all flying insects, a windshield. The sequence was to be a full two and a half minutes (!) of animation over a live action background. Autumn Light was up to the challenge and soon got to work.

Getting Started

The first storyboards were a little ambitious and were soon revised to what ended up being 14 shots. The scene starts in a small canyon and moves to a desert floor, ending up

This issue's featured effect is actually the whole opening sequence to the year's highest grossing movie to date, *Men in Black*. If you've seen the movie, you know what an accomplishment this sequence is, and here's the scoop on how it was accomplished. (If you didn't see the film, you missed out—it was one of the best of the summer).

on a road and in the path of a truck. The background images were a combination of photographed models and live action. The desert floor was actually a large-scale miniature shot with motion control. Munro supervised the plate photography. While the backgrounds were being shot, Autumn Light was putting together the hardware to render such a large project.

To accommodate their needs, Carrera Computers provided eight 500MHz DEC Alpha computers running Windows NT 4.0. All the computers were fitted with 100 megabit Ethernet cards and mounted in a closet. A custom air-cooling unit also was installed as well as a thermo alarm. Storage was going to be a problem. At film res the frames are almost 10MB apiece. Multiply that by 3,800 frames (do the math) and you see

why some serious storage was going to be needed. A small army of 3½-inch high-speed 9GB drives was purchased from APS Technologies. Four 9GB drives were hooked up to the server, with another set of 9GB drives for temporary storage of the data. With everything in place, the company was equipped with a formidable render farm.

At the time this sequence was completed, Autumn Light had a unique setup because there was no official facility. All of the work for *MiB* was done in home labs. Every system was a clone, or "synced" as Carvey put it. This means they all shared the same directory structure and software versions. This way, all the work could be shared among the machines via a "Zip-net" (running from place to place with a Zip disk).

The Modeling

While the render farm was coming together, senior animator/modeler Carlos Yambao was busy modeling the dragonfly. To achieve maximum realism, a very detailed model was constructed. The whole model was 100,000 polygons, with 50,000 polys in the head alone. Yambao used a combination of MetaNURBS and traditional modeling to create the detailed insect.

A scene was set up for animation with all the dragonfly's parts in place. For ease of animation, all the independent parts of the dragonfly were loaded separately. This allowed for maximum flexibility and control.

According to Scott Helgesen, the tail of the insect also had a few morph targets modeled. "We experimented with bones, but the distortion to the tail segments was too much."

While the modeling was taking place, the film was edited together into the final sequence. This provided the team with accurate frame counts. Now all that remained was to have the original negative scanned. All the digital in/out was provided by VCE. Once the frames were scanned and delivered to Autumn Light, it was time for animation.

Flight of Fancy

Some of the animation was handled by Paul Contegiacomo and Rick Helgesen. The exquisite lighting effects and final animation were produced by Conti. All 14 scenes were animated to seamlessly blend with each other when all the frames were projected in sequence. "One of the biggest challenges was keeping the wings visible," said Scott Helgesen. "Joe's lighting effects really brought them out and added a lot to the sequence." The motion blur of the dragonfly and its wings was LightWave's standard motion blur setting, with high antialiasing.

"The single biggest challenge for me was getting the wings to motion blur and not strobe," said Conti. "What we ended up doing was a process of fairly simple tricks that will for now remain a trade secret."

Another challenge of the project was getting the rendered elements to blend seamlessly with the background.

"To simulate the depth of field, the background images were blurred with Light-

Wave," said Carvey. "Most people don't know that everything you see for the first two-and-a-half minutes, with the exception of the credits themselves, went through LightWave."

With all the hype and hoopla of 10-bit over 8-bit color depth, this sequence is a testament to the power and quality of LightWave's rendering engine. In addition to the simulated depth-of-field blur of the backgrounds, the dragonfly was also rendered with LightWave's DOF option.

The animation was traditionally key framed. All of the shots were completed with the background sequence loaded directly into LightWave. This not only sped up the process by eliminating a compositing step, but also helped keep down the storage overhead. A total of 14 scenes were set up with as many as 75 revisions per shot. Rendering was fairly straightforward. All of the images were rendered at film resolution (2048 x 1556) and stored on the 9GB drive. Rendering time varied from five to 25 minutes a frame.

Out to Film

To keep the process on the fast track and to eliminate days of back-up and retrieval, the shots were sent out for film recording on four 9GB drives. "We FedExed those 9GB drives back and forth a few times, without a single problem," said Carvey. The record-outs were quickly turned around by VCE.

Once all the pieces were complete and put together, the scene had a life of its own.

"Probably the most satisfying thing about the whole experience was that when we were done we had created a two-and-a-half minute movie," said Conti. "It stood alone. Far too often in this business you find yourself explaining what shot was yours in the middle of a sea of effects, but in this case we could just say, 'We did the dragonfly,' and everybody remembers."

After five months of hard work, the scene was complete. The final result is nothing

Conti, Carvey, Helgesen
Autumn Light Entertainment

Conti, Carvey, Helgesen
Autumn Light Entertainment

Conti, Carvey, Helgesen
Autumn Light Entertainment

Above:

Several shots from the dragonfly sequence, created by Autumn Light Entertainment, which accompanied the opening credits in the movie *Men in Black*.

short of breathtaking. With the power and flexibility of LightWave and the talent and dedication of the team at Autumn Light Entertainment, *Men in Black* has a very memorable opening sequence.

For more info on Autumn Light, check them out on the Web at www.autumnlight.com.

Tom Williamson is effects supervisor for Computer Café Inc. He's a Star Wars fan and plays with G.I. Joe's. Reach him at: tomcatjr@concentric.net or cafe@computercafe.com

Tekniques

AUTHOR & READER SUBMITTED TIPS & TECHNIQUES

BY BOB
ANDERSEN

Syncing Flyer Video

If you have a LightWave 3D, Video Toaster, or Video Toaster Flyer tip or technique that you think other readers will benefit from, then send it to *NewTekniques* for publication consideration.

If the tip is useful, and wasn't already submitted or planned for use by a columnist, then your tip will be published and you will be given credit, along with a \$35 check.

Send tips to "Tekniques," *NewTekniques* magazine, 1038 W. Harvard Blvd., Roseburg, OR 97470, or email your technique to jtracy@main.rosenet.net.

Here's an easy way to sync up video from a two-camera shoot without digitizing both tapes:

Assume that you are doing a wedding and camera one is the main camera (you will probably use most of the footage from this camera). Assume you will only use a few clips from camera two. Also, assume you don't have enough disk space to digitize both tapes.

Step 1:

Digitize a 15-minute clip from camera one.

Step 2:

Put tape two in your VCR and queue it up to the first frame from the digitized clip. Reset the tape counter.

The counter on your VCR should match the time code on your clip.

Now you can either:

Scrub through the digitized clip one until you locate a place where you want to use video from tape two.

Use the tape counter to locate the location on tape, digitize the clip, and insert it in your project.

Scan through tape two until you locate a scene that you want to use. Use the VCR tape counter to locate the corresponding scene on the digitized clip.

This isn't exactly splitting atoms, but it saves a lot of time.

Fixing Flyer Playback Glitches

BY FRED BERNEY

Sometimes when playing back a project, a clip will have a glitch in it that lasts for about a second. The clip plays fine by itself, but within a project it tends to act up.

If the entire clip is short, copy it to another drive (Files/Files). If the clip is long, but the section you're using is short, then go into

the cutting room of the clip and make a new clip of just the length of the section you are using. You may want to add an extra second to each end for use with effects.

Place this new clip on top of the old crouton and adjust if necessary. For some reason, this does away with the glitch.

Nifty Stained Glass Effects

BY DAVE JERRARD

STEP 1: Take a simple polygon and apply a strong crumple texture to it (scales set to 4-6 and a Small Power set to around 2; 100% amplitude works great for starters).

STEP 2: Set transparency to 100%, with a veins texture set to 0% with coverage set to .001 (no bumps).

STEP 3: Activate the Color filter and then apply the "Normal Color" Shader plugin. You get instant cool-looking stained glass!

You might want to turn off all specular and reflective attributes and encase this surface between two un-bumped shiny polygons to keep it looking like a smooth piece of glass. Play around with the texture sizes until you're happy with it.

Import CG Pages into CG Pages!

BY JOE TRACY

You may have used the Import command in the Video Toaster Flyer's CG to import images (like from ToasterPaint) onto a box. But did you know that you can import a CG page onto the box, too? This is great for creating over-the-shoulder news-type effects.

STEP 1: Create the CG screen you want to go into a CG box. Save it.

STEP 2: Go to a new CG page and draw out a box the size you want.

STEP 3: Hold down Alt and then F1 to bring up your ARexx command screen.

STEP 4: Select Import, then click OK.

STEP 5: Navigate to your CG drawer and click on the CG page you saved.

That CG page will be imported onto your box! Render it out to see the final results.

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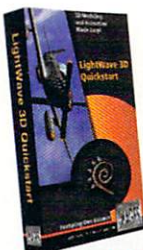
New



Photoshop Essentials

If you use photoshop, you need this tape. Digital artist & instructor Katrin Eismann reveals amazing time saving tips & techniques for color correction, creative compositing, levels & curves, layers, keyboard shortcuts, hidden commands and much more!

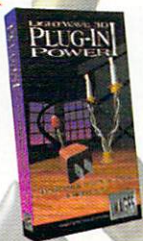
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QuickStart 5.5

A complete overview of LightWave 5.5. NewTek's Don Ballance provides fundamental concepts in animation, modeling & surfacing techniques. Includes MetaNURBS tutorial plus a special "update" section for current LightWave users.

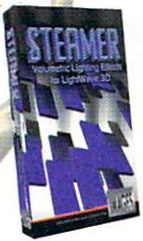
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Learn about three incredible Plug-Ins for LightWave 3D. Advanced modeling capabilities with Macroform, particle animation with Particle Storm & advanced image processing with WaveFilter.

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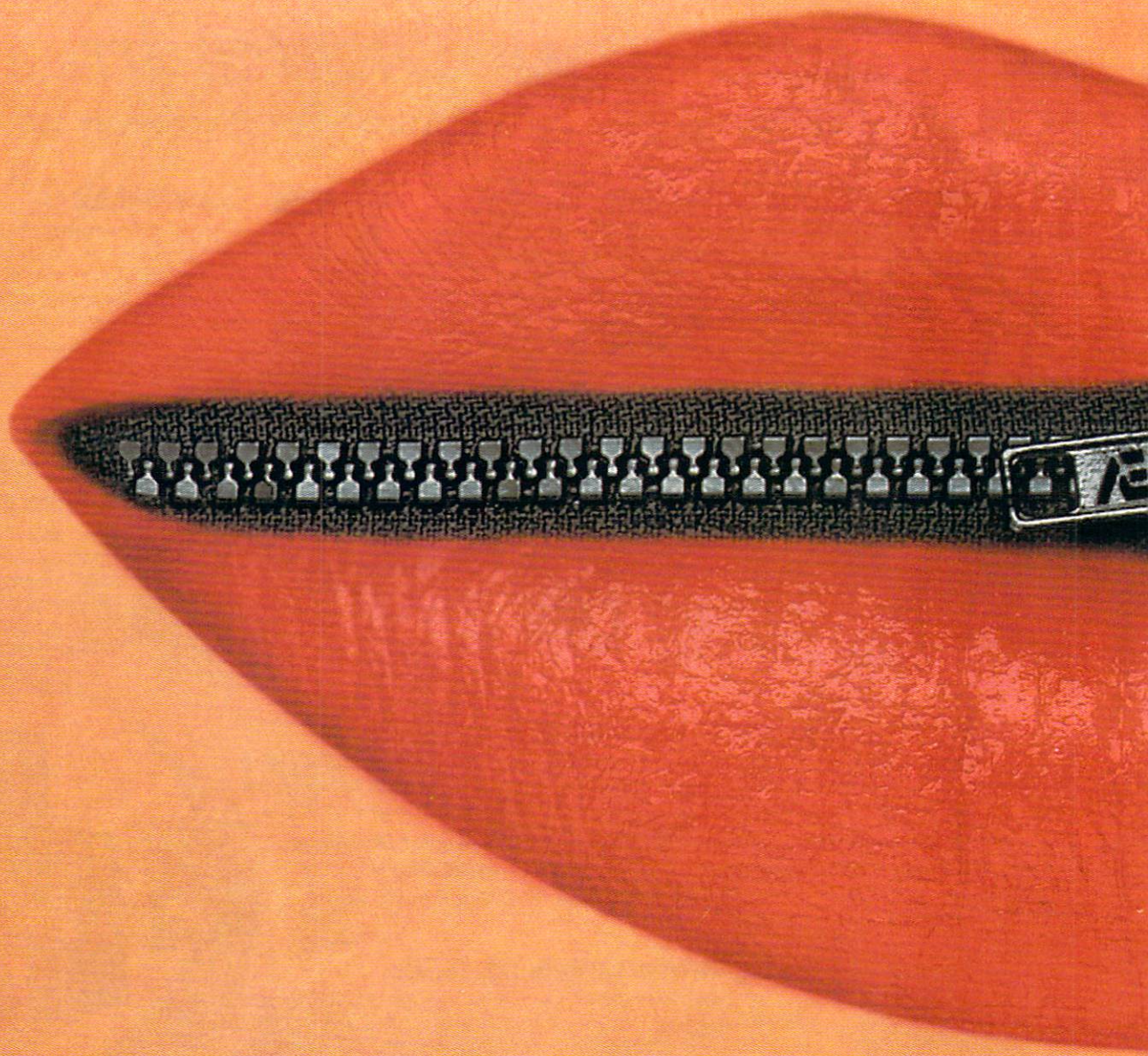
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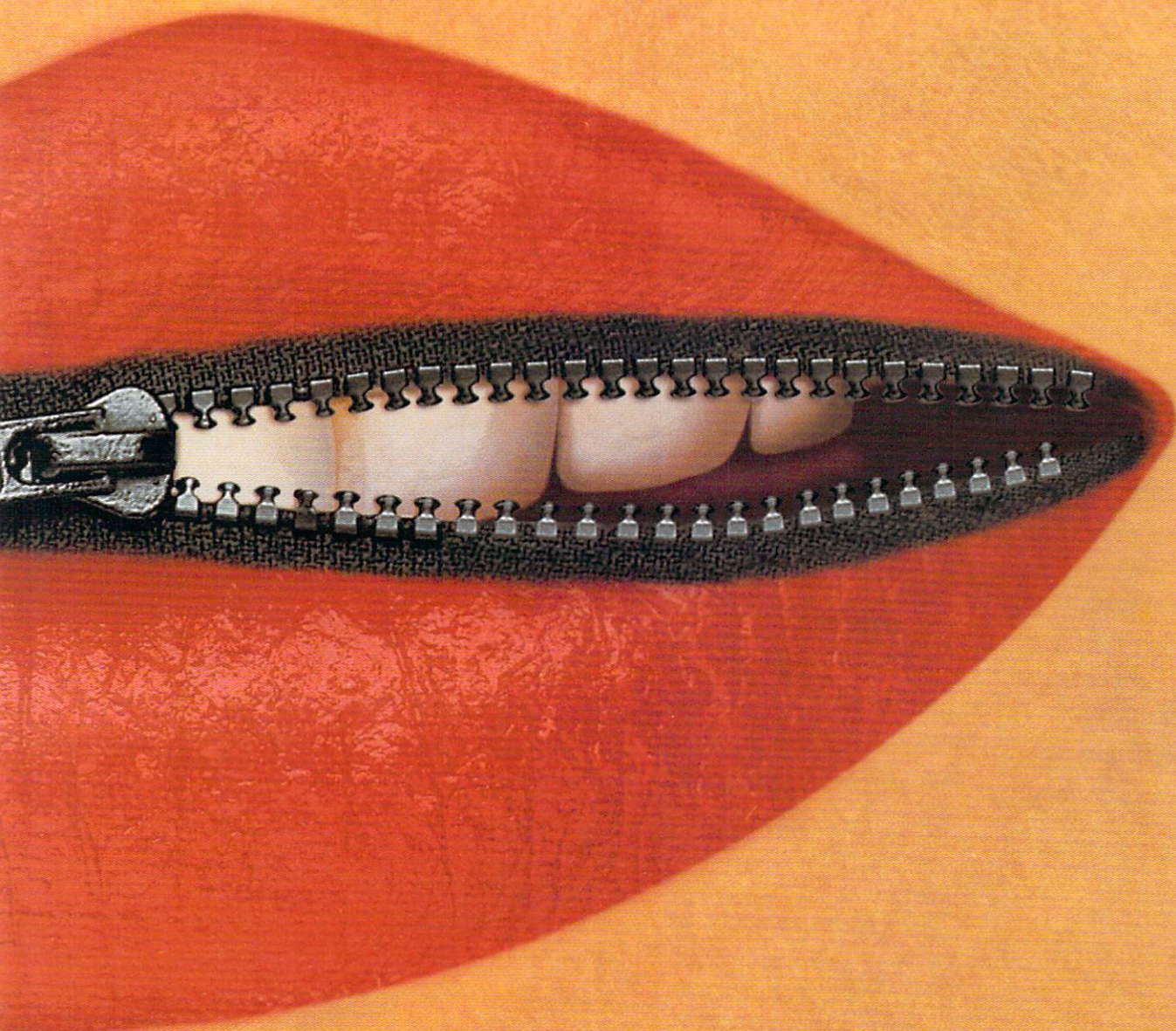
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Tutorial

A STEP-BY-STEP GUIDE TO CREATING MORE PROFESSIONAL PRODUCTIONS

BY RYAN
"SPIKE" DAUNER

LightWave 3D 5.5 Feature Makes It Easy SPIKE'S SNAKING STEAMER SMOKE

Creating realistic-looking smoke is a challenge, but Spike shows you how to do it using the new LightWave 3D 5.5 Steamer plug-in.

Traditionally, one of the most challenging and render-intensive effects to create has been smoke. As animators we've tried cylinders, balls, morph targets, image sequences, and transparency maps. But now, thanks to the brilliant programming of Gregory Duquesne, we have a powerful tool to create this elusive effect. Steamer, a feature of LightWave 3D 5.5, enables you to generate volumetric lights and volumetric particles. A basic understanding of displacement maps, bones, and Steamer is useful when attempting this effect. The smoke we're going to create is a wispy, snaking smoke. One might see this effect from the barrel of a gun, the end of a cigarette, or smoldering ruins.

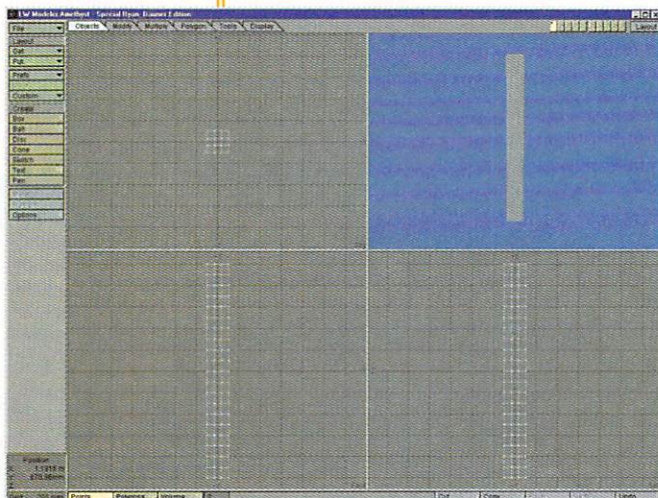
The first thing we need to do is create an object that we can apply Steamer to, so off to Modeler we go:

1. Create a box using the following numeric values:

	Low	High	Segments
X	-100mm	100mm	3
Y	-1m	1m	20
Z	-100mm	100mm	3

This will give us our basic shape. (See Figure 1).

Figure 1



2. Now hit "k" on the keyboard to kill all the polys...remember we only need the points.
 3. This shape is too ordered to look like smoke, so hit "shift + j" on the keyboard to jitter. Select Gaussian and enter a radius of X 100mm, Y 1m, Z 100mm.
 4. Okay, that's better, but there are too many points. Note that Steamer will compute its settings for every point and that can take awhile. So to reduce our point count, hit "m" on the keyboard. Select Fractional and enter a value of 1.75. Check your point count; you should have between 130 and 160 points in your object.
 5. Go to the TOOLS panel, select the CUSTOM bar, and run the POINTS2POLYS plug-in. (See Figure 2).
- Save your object as Column.lwo.
6. Enter LightWave and clear the scene. Set your default units to meters, then load object Column.lwo. It's probably best to go to the Surfaces panel and change the points to a bright yellow and crank the Luminosity to 100 percent. This is just so you can see the particles better in the OpenGL/QuickDraw 3D interface.
 7. Now add four independent bones (no child bones). Set their Rest length to .5 and Falloff Type to 1/Distance ^ 8. Position the bones at the following coordinates:
- | | Position | Rotation |
|--------|----------|-----------|
| | X: 0.0 | H: 90.0" |
| Bone 1 | Y: 1.315 | P: 0.0" |
| | Z: 0.0 | B: 0.0" |
| | X: 0.0 | H: -90.0" |
| Bone 2 | Y: 0.245 | P: 0.0" |
| | Z: 0.0 | B: 0.0" |

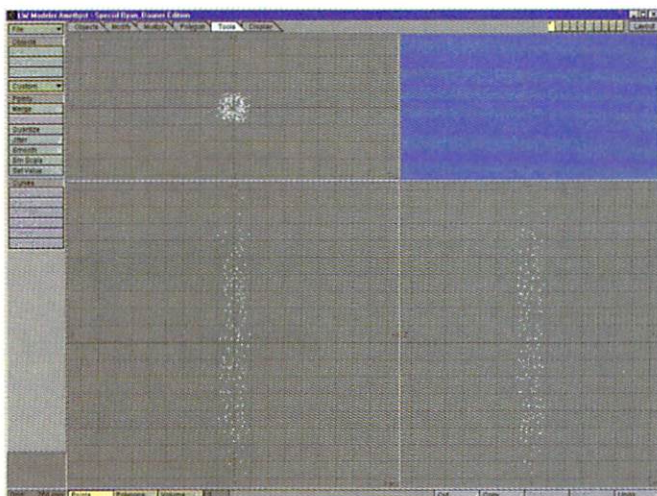


Figure 2

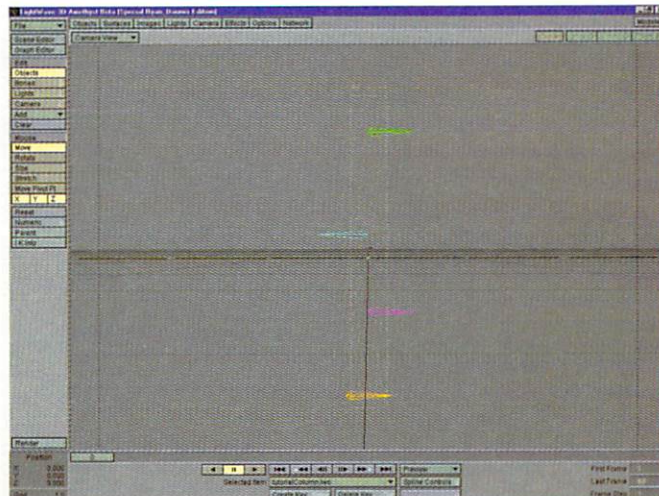


Figure 3

Bone 3 X: 0.0 H: 90.0"
Y: -0.56 P: 0.0"
Z: 0.0 B: 0.0"

Bone 4 X: -0.230 H: 90.0"
Y: -1.415 P: 0.0"
Z: 0.0 B: 0.0"

Bone 2 X: -0.005 X: 0.3
Y: -1.415 Y: 0.3
Z: 0.0 Z: 0.3

Bone 3 X: 0.070 X: 0.3
Y: -1.415 Y: 0.3
Z: 0.0 Z: 0.3

Bone 4 X: -.23 X: 0.15
Y: -1.415 Y: 0.15
Z: 0.0 Z: 0.15

Bone 3 X: 0.280 X: 0.5
Y: -0.550 Y: 0.5
Z: 0.0 Z: 0.5

8. Finally, Rest the bones in their numerical order by selecting the bones in order and pressing "i" on the keyboard. (See Figure 3).

These bones will be our handles to guide and twist the smoke column, but if we move them now, the column's particles are static and have no swirling movement.

9. In order to create that movement and some randomness, go to the Objects Panel. Select Column as the Current Object and click on the T button for the Displacement map. Select Fractal bumps as the Texture Type. Set size to X 0.6, Y 0.6, Z 0.6. Change the amplitude to 0.35 and finally turn on World Coordinates.

10. Return to Layout, and select Bone2 and Move it around on the X and Y axis. Notice how the points will displace in real time; this allows you to tweak the displacement map without having to do test renders.

11. Go to frame 0 (if you're not there already) and set the bones to the following positions and sizes. Make sure to key frame each of the bones at these values for frame 0:

	Position	Size
Bone 1	X: -0.005 Y: -1.415 Z: 0.0	X: 0.3 Y: 0.3 Z: 0.3

12. Go to frame 20 and set the bones to the following Positions and Sizes:

	Position	Size
Bone 1	X: 0.355 Y: -0.3 Z: 0.0	X: 0.54 Y: 0.54 Z: 0.54

Bone 2 Keyframe it at its Frame 0 location
Bone 3 Keyframe it at its Frame 0 location

13. Go to frame 40 and set the bones to the following Positions and Sizes:

	Position	Size
Bone 1	X: -0.095 Y: 0.725 Z: 0.0	X: 1.44 Y: 1.44 Z: 1.44
Bone 2	X: 0.265 Y: -0.3 Z: 0.0	X: 0.6 Y: 0.6 Z: 0.6

Bone 3 Keyframe it at its Frame 0 location

14. Go to frame 60 and set the bones to the following Positions and Sizes:

	Position	Size
Bone 1	X: 0.3 Y: 1.92 Z: 0.0	X: 3.0 Y: 3.0 Z: 3.0
Bone 2	X: -0.310 Y: 0.325 Z: 0.0	X: 1.5 Y: 1.5 Z: 1.5

15. SAVE YOUR WORK!!! No software is bug-free—especially Steamer.

16. Okay, that's all for the animating. Go ahead and make an OpenGL/QuickDraw 3D preview and watch the motion.

Since we're controlling portions of the column with bones, it can be made to twist with wind currents and size as it disperses. Go ahead and make any changes you like to it before we apply Steamer.

17. Render a frame (I'd prefer frame 60) before applying Steamer. This gives Steamer necessary Z-buffer information. (See Figure 4).

I wanted the smoke to disperse into the air at the top of the column. To do this with Steamer, you must realize that the particles in the object will have a light that makes them visible.

18. Go to the Lights Panel and rename the current light to Steamer_Light. Make it a point light and set Light Intensity to 50 percent. Turn on Intensity Falloff and set the Maximum Range at 4.7.

19. Go back out to Layout. Go to Frame 60 and parent the light to Column. Move Steamer_Light one meter below the base of Column and set keyframe at 0. Be sure to check side and front views so that the top of the column is outside of Steamer_Light's falloff. (See Figure 5).

When dealing with particles, Steamer is a two-part plug-in and must be applied in both locations (Displacement plug-in and Pixel filter plug-in) or it will not work.

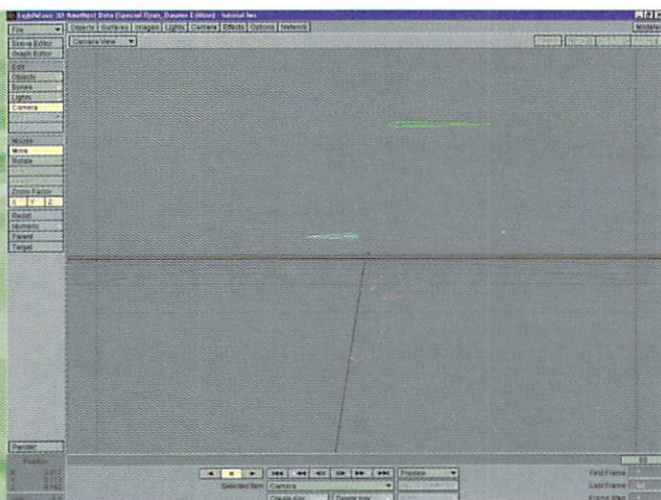


Figure 4

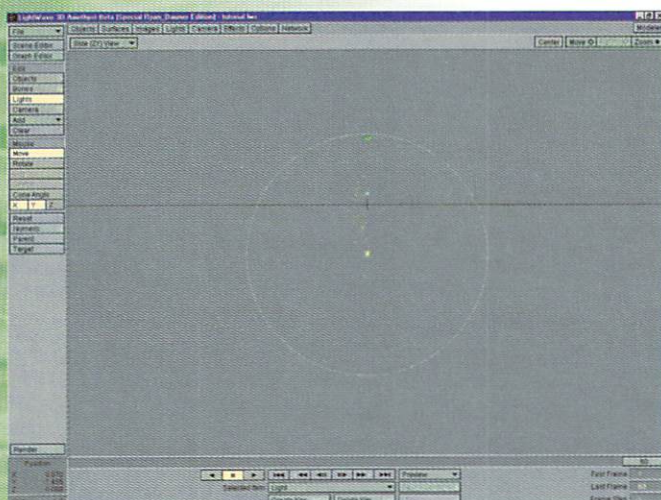


Figure 5



Figure 6

20. First go to the Objects panel and make the column 100 percent dissolved (it was only visible for the setup purposes and would ruin our render if not dissolved).
21. Select the first Displacement Map plug-ins slot and highlight Steamy Particles (don't worry about the options for this tutorial).
22. Advance to Frame 60 of the animation. Go to the Effects panel and then to the Image Processing tab. In the Pixel Filter plug-ins you will find Steamer. Select Steamer and go into the Options. On the left, select Column under the Edit Object pop-up. Click on the Activate button next to the pop-up. You will be warned to return to Layout—so do it.
23. Re-enter Steamer Options and Select Steamer_Light under Active Light. Set the following options:

Dissolve	10 percent (turn off Automatic sizing)
Radius	0.19 (this is the size of each particle)
Variation	50 percent
Variation Scale	0.15 (these set the variation of the particle size)
Falloff	2
Clipping	1000.0
Samples	50 (to increase detail)
Luminosity	100.0
Opacity	0.0
Attenuation	20.0
Red Shift	0.0
H: 0	S: 0 V: 230
Fractal noise	On
Parent object	None
Frequencies	4
Small Scale (m)	0.11 (sets smallest Fractal noise)
Grain	10
Contrast	25
Big Scale	0.0
Amplitude	125
24. Select full preview and click refresh. Go ahead and play with the settings—the ones in this tutorial are purely subjective. Once you get the settings you like, render out an animation and take a look at your steamy smoke!

I hope this tutorial has given you a better grasp of Steamer and a new perspective on LightWave's particle animation capabilities. BEWARE: Although Steamer is a powerful and useful plug-in, render times may be intense. Some helpful ways to cut down the render times are to click on the No Antialiasing and Render 1/2 Res buttons within Steamer itself. (See Figure 6).

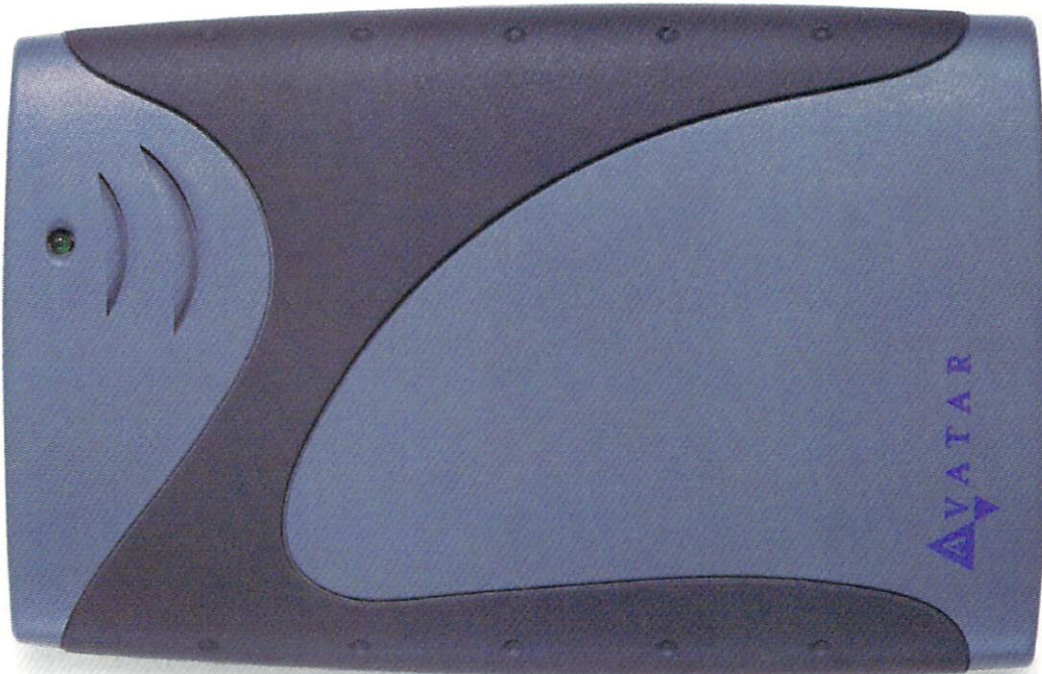
Spike is a former NewTek employee who now animates professionally in Los Angeles. His hobbies include sleep deprivation and malnutrition. He can be contacted through email at LWanimator@aol.com, or via snail mail at P.O. Box 46096, Los Angeles, CA 90046. Special thanks to Bryan J. Blevins, who is NOT a cartoon character, for his assistance with this tutorial.

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Circle #224

BY ERIK FLOM

"Skinning"
a 3D cylindrical
object to create
a reference bump
or texture map.

A Facial Peel That Doesn't Burn SKIN-O-MATIC!

You've just finished your latest 3D monster and the model looks great! But now you need to add some detailed bump and texture maps to make it look real! This article will describe a simple LightWave 3D scene that can be used to "peel the skin off" of any roughly cylindrical object and leave you with a high-resolution image that you can use as a reference for creating cylindrical texture maps. Optimally, you will also have a layered paint program like Photoshop to create your texture maps, once the template is made.

When texturing an object such as a head, the easiest and most common technique in LightWave is to use the Cylindrical projection map option and map textures onto the head as if it were a pole. This is fairly straightforward, but a problem arises when you need to place markings with precise detail (i.e., fine wrinkles around the eyes and mouth, moles, tattoos, scars, etc.).

If you're using the Humanoid object by Crestline software, you'll already have a reference bitmap to work from. Crestline uses Meshpaint from Positron. It's a 3D paint program that will automatically create a PolyMesh—a bitmap showing just the wireframe outline of the image, unwrapped for cylindrical projection. No color or texture information is included in these black-and-white bitmaps, but they are nice starting points for building texture maps.

What if the head of your creation doesn't look even remotely human? With no reference, it's virtually impossible to line up anything but the grossest detail in a 2D paint program. Of course some true artists in the audience may have had success—but I'm not one of them—I can barely paint to begin with.

There are some new programs out for the PC, Mac, and others that will enable you to paint directly onto a 3D object. Detailer by MetaCreations is the most widely advertised. Unfortunately, it does not support the LightWave format directly, so objects have to be saved out in DXF format. It works, but lack of direct LightWave support adds several extra steps.

At NewTek's SIGGRAPH booth this year, a new paint program was being shown off. It looks to be an extremely powerful multi-

layered paint program that allows direct painting of Specularity, Bump, and Diffuse maps—with a real-time preview window!

Still, these programs cost hundreds of dollars each, and a free workaround is always welcome!

Below is a description of how to set up a scene that I call "Erik's Skin-o-Matic." While this demo uses a head object, almost any cylindrical object can be skinned using this "jig." You'll just have to change the image aspect to match the ratio of cylinder height to object circumference. In case you forgot the equation, Circumference is the diameter (2x radius) x pi (approximately 3.1415).

When rendering, the image will be built up from left to right as a series of small strips. Each frame adds another small slit to the finished image. The important thing is that each individual strip is rendered along the same angle that a

cylindrical projection map would follow—basically reversing the image mapping to leave you with an accurate template.

To understand how this technique works, consider a popular device used to capture 3D models of human heads: the CyberWare scanner. (First commercially used to put human faces on the water creature in *The Abyss*, it's been seen in countless films since.) The scanner is a big unit with a chair in the middle, and a camera that rotates in a circle around it. An actor remains stationary while the camera rotates around him/her. As the camera rotates, 3D geometry data is captured using a laser scanning technique. As the 3D data is collected, a standard camera also captures a series of small image strips—one for every column of polygons. These thin vertical strips are then assembled into a panoramic image, which shows a perfectly lit view of the actor's head from every angle.

This tutorial uses a similar concept to create the cylindrical projection of your head object.

Modeler:

1. Load your object into Modeler and select just the polygons you want to map. Cut those polys into a new layer and center the object using the Custom->LW_Center tool. This is basically the same as using the "Auto Size" button on the final texture map—more on this later.

2. Once you've created this temporary object, save it out with some descriptive name, like "TmpHead.lwo."

Now we have to create a slit object.

3. Create a box with numeric values:

LOW: .625mm, -.25m, 0
HIGH: 1.0m, .25m, 0

4. Mirror the object along the X axis. Name the polygons "ViewSlit." Save the object as: "ViewSlit.lwo."

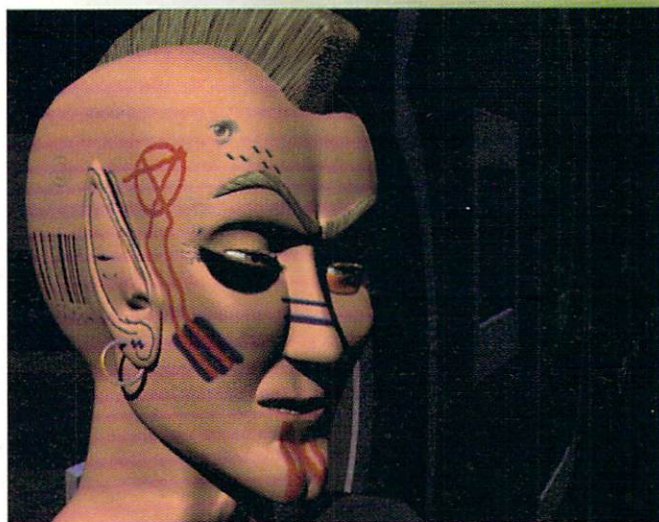
Layout:

5. Go to Layout. Select the Camera panel. Start by enabling the Custom Size setting and set the image size to 1024 x 480. Set pixel aspect to Square Pixels, and set segment size to 12MB. You can set antialiasing to whatever you want—though OFF works just fine for a background template. Don't use Enhanced AA, as this will blur out the image unacceptably.

6. Set Zoom Factor to 1000. Yes, one thousand! Setting the Zoom Factor this high virtually flattens out the head—minimizing perspective distortion that would occur with a wider "lens."

7. Close the Camera panel, and select the Camera.

Move it to 0, 0, -150 at frame 0.



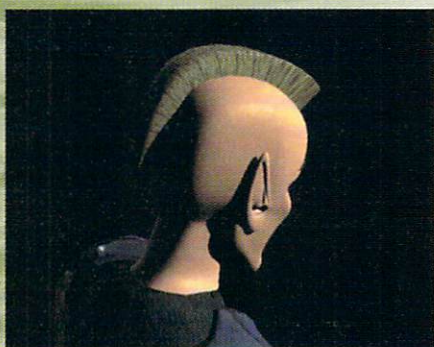
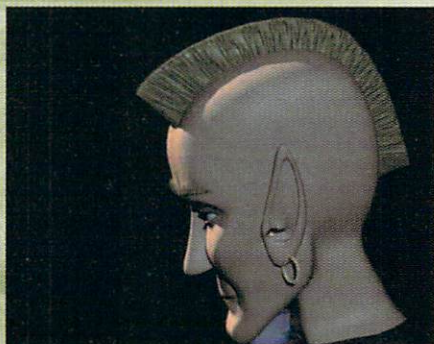
Top:

The original Elven head with a generic skin texture.

Bottom:

The Elven head with new textures applied.

8. Create a Null Object named "ObjectPeeler." At frame 0, move the ObjectPeeler to -32cm, 0, 0, and set the heading to -180. At frame 256, set the position to 32cm, 0, 0, and heading to 180. Set spline control to linear for keyframe 256.
9. Load the "ViewSlit.lwo" object. At frame 0, move the object to -16cm, 0, -75m, and at frame 256, set the position to 16cm, 0, -75m. Leave rotation set to 0. Again, set spline control to linear for keyframe 256.



The elf from several other views.



The finished head wrap image.

10. Load the "TmpHead.lwo" object and parent it to the ObjectPeeler.

At this point, the scene is done! You should see the head object centered on the left side of the screen—only one-half should be visible, and it should be facing away from the camera. You might not see the head if your preview mode is set to Smooth Shaded or Textured. Just set the view options for the ViewSlit to Front Face wireframe.

11. If necessary, size the head object at frame 0 to fit vertically within the bounds of the final rendered image.

Lighting:

12. Select the only light in the scene and Parent it to the ObjectPeeler. This way, your light source is fixed to the rotating head. You can also add more lights to highlight the head's shape. If you want flat lighting, just point the light straight at the face, and DON'T parent it to the rotating ObjectPeeler.

In the examples you see here, I had created a temporary scene with just the head and some generic lights parented to the head. Next, I just did a "Load From Scene" to load everything into the "Skin-o-Matic" scene.

Surfacing:

13. Go to the render panel, and setup the destination directory—you will need enough space to hold at least 256 intermediate frames—probably a few hundred megabytes at most. Set the first frame to 0, and the last frame to 256.
14. Render out frame 0.
15. Go to the Images panel and load an Image Sequence. Select the same image you just rendered, and set the Frame Offset to -1.

16. Go to the Surfaces panel and find the ViewSlit surface. Set the Surface Color Texture option to FrontProjection map and select the Image Sequence you loaded. Set the Luminance to 100 percent, and the Diffuse Level to 0 percent. This prevents the Front Projection map from being affected by ambient lighting.

17. Save the scene as Skin-o-Matic.lws, and Save All Objects—just to make sure all surfaces are saved.

Rendering:

18. Before rendering out the whole scene, you might want to make a quick wire-frame preview and make sure everything is set up correctly. You should see the head rotating from left to right, with a small slit centered on the head as it travels from left to right.
19. Once you're sure everything is set up correctly, go ahead and render the images. Now would be a good time to get some coffee. It was taking about nine seconds for each of the 256 frames, or a little over half an hour on my dual 200MHz Pentium Pro.
20. When the rendering finishes, you should have a directory full of images. We're only interested in the last one, because it has all the strips joined into a single image.

21. If all worked as specified, you should see a big (and wide) image that shows every side of the head you want to detail.
22. Once you've created your texture map(s), Auto Center them on the head surface and they'll line up perfectly.

Congratulations! You're done!

Erik Flom is owner of ELFWorks 3D Construction Co., a full-service animation company serving the San Francisco Bay area. His Web site is located at www.ELFWorks.com.

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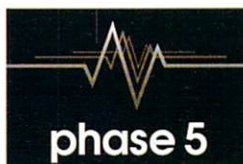
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BY ERIC
BOTTORFF

A Trade Secret for Infinitely Looping SEAMLESS VIDEO CLIPS

A good-looking usable object can be created quickly using simple geometry and basic Boolean operations.

A really good technique to improve your productions is sometimes classified as a trade secret, and most people have at least one of these secrets. The following technique could be classified as one, as it will enable you to take any animation, image sequence, or even video segment and turn it into a small looping clip that will play seamlessly, over and over, for as many seconds or minutes as you need.

Moving Texture All Around You

Even if you're not "Captain Animator" you can make your own moving backgrounds. You don't have to make your own from scratch in LightWave 3D, although this is one option. Moving textures are literally all around you! Have you ever been a

passenger, looking out the window at the road as it blurs by? Shoot it and use this technique. Got a swimming pool? Catch those rippling blue waves for

importing into your Flyer. The possibilities are endless. Recently, I shot a commercial at a dental office that had a beautiful aquarium. I brought my camera and filmed an extreme close-up of bubbles rising to the surface. Even though I didn't have an immediate need for it, it went into my clip library for possible future use. It's surprising how often these can get you out of a creative jam when you need something to spice up that logo or tag shot.

The Trick of the Trade

1. Take the footage you've shot and digitize it into the Video Toaster Flyer. You only need about 4 to 6 seconds, but you can digitize more. Feel free to try a FlyerProc effect, like slow motion or strobe, on your clip.
2. Now the clip needs to be broken into individual frames. To do this, go into ToasterPaint

and click on the Process button on the bottom menu.

3. Click the button under Source Clip. Select the clip you will be processing.
 4. In the Frames to Process field, enter a Last Frame amount of 4 seconds.
 5. Under the Process Clip heading, you'll see a scroll-down menu. Find the ARexx script titled "clip2iff30" and select it. A requester asks where you will put the files. Keep in mind that this four seconds will produce 120 images totaling anywhere from 70 to 120MB on your system drive. Be sure not to use a Flyer drive!
- If you're generating the frames through LightWave, then all you need to do is save the image sequence. If you're short on hard drive space, you can have Light-

Scene Panel: Note the start and end frames.

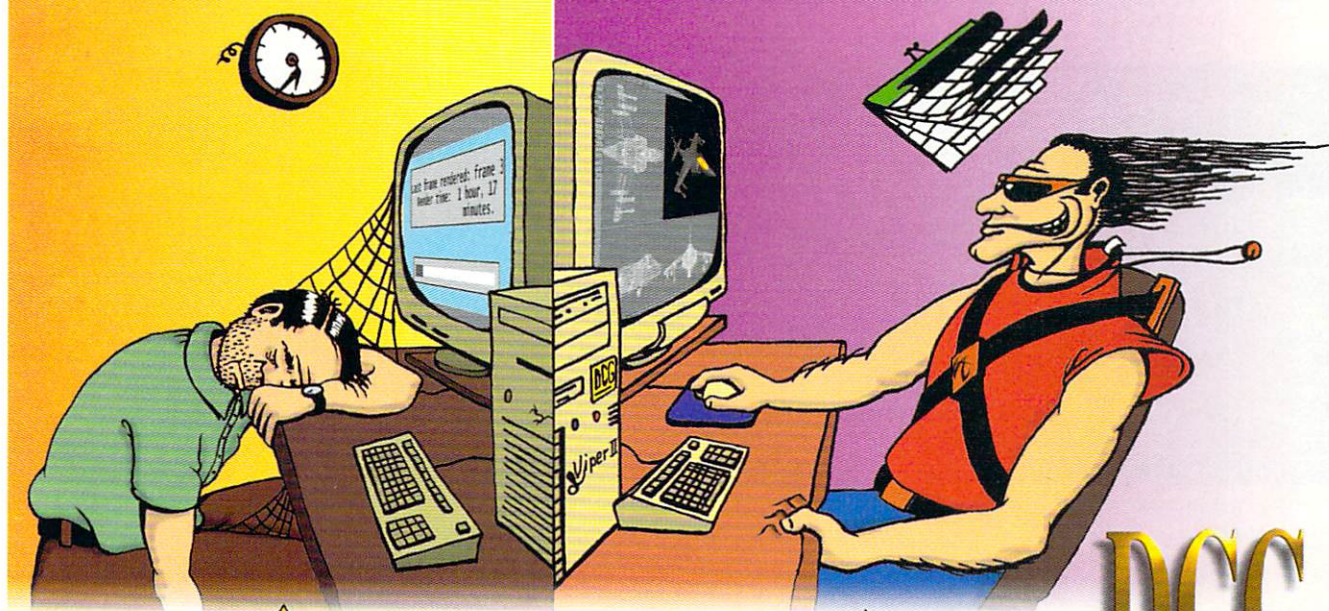


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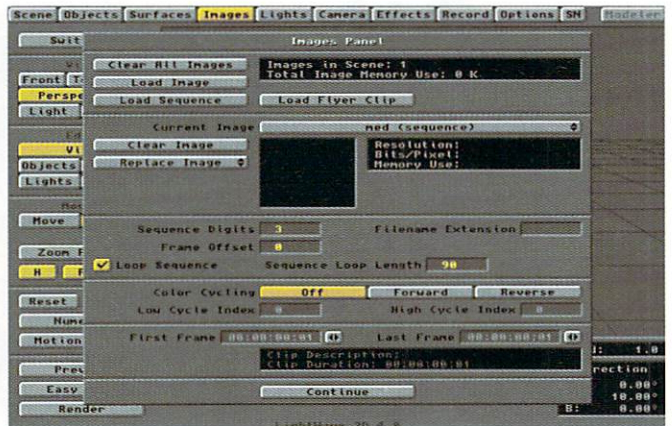


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Circle #210



The Dissolve envelope between the foreground and background images.



The image panel: Looping is selected at frame 90 so a 1-second dissolve can be mixed into the clip.

Wave save the images as JPG files, which will only take up 30 to 40 percent of the amount of space.

LightWave to the Rescue

6. Enter LightWave and under the scenes panel enter a Last Frame length of 120.
7. Go to the Images panel and select Load Sequence. Locate the images and select any one of them. LightWave will recognize the sequence as an image with the base name you gave the files.
8. Select Effects, then Image Compositing, and on the scroll-down menu for Background Image select the image sequence.
9. Go back to the Images panel and click Load Sequence. Select the same sequence. Now click the Loop Sequence box and under Sequence Loop Length, enter 90.
10. Return to the Effects panel. Select Image Compositing and under the Foreground Image scroll-down menu, highlight the second image sequence. Be careful to choose the second choice, as they both have the same name.
11. On this same panel is a selection for Foreground Dissolve. This is the key to the whole process. Click on the "E" to bring up the Dissolve Envelope panel.

Set the current value to 100 percent, then press Enter until a requester comes up to create a key frame. Enter 90. Make another key frame at 120 and set the current value for it to 0 percent. Set the Spline Control for the two key frames at 90 and 120 to Linear. Press "S" to bring the requester up, then click Linear.

12. Go to the Camera panel and make sure Field Rendering and Medium Resolution are selected.
13. Go to the Record panel. Click on Save Animation. Select a name and Flyer video drive to save the clip.
14. From the main screen, click the Render button. For the First Frame enter 31. The Last Frame should be 120. Click Automatic and then OK.

When LightWave is finished you should have a three-second, seamless clip that can be laid end-to-end anywhere in your project!

Another Trick of the Trade

You may want to experiment with longer lengths or other variations. Three seconds might be too short and repeat too quickly with some shots. I have found that scenes with textured, abstract, or nondescript images seem to work best for this technique.

Here is a quick summary of the steps needed to produce these animated backgrounds:

1. Generate a sequence of single files.
2. Load the image sequence into LightWave 3D, making it the Background Image.
3. Load the sequence again and select Loop Sequence. Make the Sequence Loop Length 30 frames short of the last frame (i.e., if it is 120 frames long, your Sequence Loop Length will be 90).
4. Make the second image sequence the Foreground Image.
5. Set the Foreground Key envelope to 100 percent at frame 0 and 100 percent at 30 frames before the last frame (i.e., if it is 120 frames long, you will set it to 90). Set the last frame to 0 percent. Make all keys Linear.
6. Render frame 31 to the end of sequence.

If we can all add another "trick of the trade" to our repertoire from time to time, it will give our productions a fresh look, and push the quality of our video productions to an even higher level.

Eric Bottorff owns High Quality Productions, based in central California. He produces television commercials and numerous animated backgrounds.

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Renders

ARTWORK CONTRIBUTED BY OUR READERS

RICHARD NATZKE — "Sky Castle"

Software: LightWave 3D 5.0

Description: This image was only the second image that I created with LightWave. It depicts a stone fortress floating in the air above a tranquil sea with snow-capped mountains in the background. Displacement mapping was used to model both the castle in the foreground and the mountains in the background.

email: aspiring3D@aol.com



STÉPHANE BELIN "The Box"

Software: LightWave 3D 5.0

Description: The goal here was to give the atmosphere of a kid's room. I think most of the impact is given by the lighting and the cast shadow of the bed.

email: sbelin@pressimage.fr

JAY WESTON — "Tiger Tanks"

Software: LightWave 3D 5.0

Description: WWII Tiger Tanks on patrol. All objects and textures were created by me; total number of polygons is 73,000.

email: westonjj@light.iinet.net.au

phone: 61.8.8298.5664



SCOTT ARMATTI — "The Keep"

Software: LightWave 3D 5.0 and Photoshop 4.0

Description: This is a personal animation work in progress of a fallen-in-Keep, which will eventually be the lair of a rather nasty dragon.

email: armattis@pilot.msu.edu



TY ROBINSON — "The Abductor"

Software: LightWave 3D 5.0

Description: I made the model to the exact specs in the tutorial, then applied my own textures, bump maps, and background.

email: tyntaryn@concentric.net

Phone: (415) 982-4819

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Reviews

CANDID OPINIONS ON THE LATEST PRODUCTS AND PLUG-INS

Gaffer

BY DAVE THOMAS

Gaffer is a plug-in designed to give you more control over the look of LightWave 3D images. It grants the user new power over certain shading parameters, allowing better control to create photo-realistic 3D images. The plug-in comes with a short manual that is a bit different than the usual manual. Instead of covering the program's controls, it discusses the various features, what they do, and why you would want to use them.

Gaffer is assigned on a surface basis, which makes it easy to have complete control over the look of an object. Bringing up the main display window reveals a wealth of controls. The interface may seem overwhelming at first, but the program is not hard to use, once you understand what all the controls do. A sample sphere at the bottom of the display previews the look you are assigning to the surface.

It is possible to load and save Gaffer settings, which is really handy when you want to apply a similar look to a number of surfaces. It is also possible to animate any parameter that has an "A" button next to it, through the use of an animated Null object.

So what can you control with Gaffer? First up is more lighting control. You can exclude lights from surfaces, or even subtract light from a surface. The plug-in also offers control over light falloff, which can be used to simulate the way light falls off in the real world (something LightWave doesn't do). It's possible to assign these parameters to groups of lights for easier control. This feature alone makes the program very useful.

Gaffer gives you more control over the Specularity of surfaces. Instead of just a percentage of Specularity in the standard LW surface, you can have Primary, Secondary, and Tertiary

specular reflections, each with its own parameters.

It is possible to control the color, glossiness, and sharpness of the reflection, as well as the angle. Using angle of reflection parameters lets you add Fresnel reflections to your surfaces. Fresnel reflections are not as strong when viewed from an angle as they are head on, and really add to the realistic look of a scene. It's also possible to use Anisotropic reflections, which are useful in accurately simulating the look of surfaces like brushed metal or fur.

Gaffer gives you additional control over diffusion. By using its diffuse roughness setting, you can get better looking rough surfaces, like rock or sandpaper. The Diffuse Transmission setting can control the look of thin materials that will let strong light show through them, such as paper or a bat creature's wings. These are very handy controls.

Another tool that adds realism to your images is Area Light Soft Shadows. These shadows are much more realistic looking, and look better than either LightWave 3D's ray traced or shadow-mapped shadows. There is a rendering penalty involved, because these shadows use ray tracing to accurately determine the look of the shadows. There is user control over the quality level involved, so you can experiment to

find the best settings for your work.

The package comes with another plug-in called Bloom. This plug-in lets you create all sorts of interesting glow, halo, and blur effects. It is applied in the Effects panel, and works on the entire image. By boosting or cutting the various values, you can give an object "hot spots." You have control over the Red, Green, and Blue channels, as well as radius, intensity, and other parameters. All of these parameters can be animated. I found it most useful for adding glows to images that would be very difficult to create with LightWave's standard tools.

So, is Gaffer for everyone? Probably not. Hobbyist or casual users of LightWave 3D probably would be overwhelmed with all of the choices the program provides. If you don't have a decent background in real-world lighting and/or a good understanding of how LightWave's lighting works, you might find yourself confused by the control the program provides.

If, however, you want more control in that eternal quest for the perfect CG image, then Gaffer is for you. It is not hard to use, but takes some time to master. With its power, you will be able to achieve image quality that was not available previously in LightWave 3D.

LIGHTWAVE 3D TOOLS

Gaffer

LightWave 3D 5.5

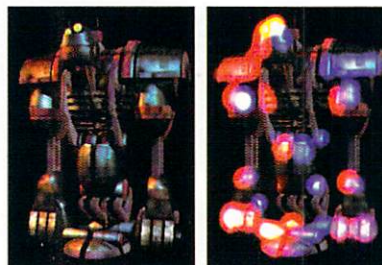
FLYER AND TOASTER TOOLS

RenderFX 2.0

Calibar

SEE MORE REVIEWS ONLINE!

Visit the *NewTechniques* Web site at www.studiovisions.com/newtechniques and select "Reviews" for a look at the Digital FX Collection CD-ROM by Ron Thornton and the Camelot Collection by Replica Technology.



Using the Gaffer and Bloom plug-ins, you have better surface and lighting control for increased photo-realism.

A plug-in that adds improved lighting, shading, and surface parameter control to LightWave 3D.

CONTACT INFORMATION

Gaffer

Worley Labs

\$195 (Intel), \$295 (Alpha)

Web:

www.worley.com

mail:

405 El Camino Real
Ste. 121
Menlo Park, CA 94025
(415) 322-7532

Circle Number 101

LightWave 3D 5.5

BY
JOE CLASEN

The much anticipated upgrade to LightWave 3D 5.0 starts with a full interface-lift. The new interface has a look and feel more consistent with other high-end 3D packages and should help quiet the complaints that LightWave just doesn't look like a professional program. Of course, there's more to a good interface than beveled boxes and tasteful fonts. LightWave 3D 5.5 includes a variety of highly useful new features and options, including modal windows that "float" and can be moved about the screen, and a LightWave Appearance panel that enables you to customize Layout color settings.

You might find yourself initially missing the location of some of your tools, but the new Layout is generally well-thought-out. The new layout preview controls and Perspective View controls are a pleasure to use. The new Render panel takes a little getting used to (don't forget to hit that Auto Frame Advance button), but new features like the Motion Panel's dynamic update capability more than make up for a few rearranged buttons. Perhaps with the coming of Windows NT 5.0 and dual monitor support, the ability to modify a motion graph while instantly seeing the results in OpenGL with dynamic updates will be appreciated. The programmers wisely give you the option of turning off the dynamic update in case larger scenes slow the response of the motion graph to a crawl. But why did they stop at modal windows? Why not fully resize the windows and configure your environment? Well, there's always 6.0.

Modeler gets the nod here for exceptional achievement, enabling you to re-map your favorite hot key to whatever plug-in or tool you choose. At last, your drag tool can be the letter "d" or any other key combination you choose. Modeler also enables you to select and load multiple object files while Layout still does not.

There are some wonderful new tools including "Knife" and "Dragnet" and "Pen" that you'll find yourself using constantly. The visual assists for the deforming tools are another stroke of genius. Small pointers now guide you while deforming your object.

With the use of nulls, you can finally shear, bend, twist, vortex, or pole distort an object in real time with the new deformer plug-ins. Now you can see textures in OpenGL. You can even use null objects to place your textures visually

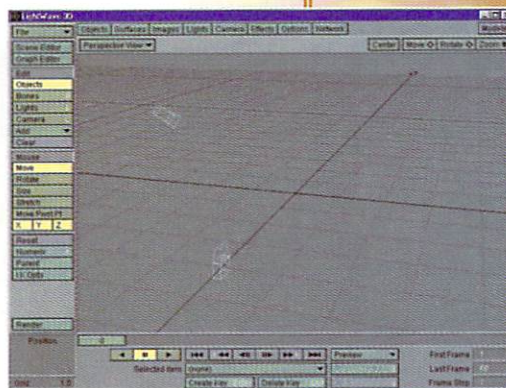
and animate them in real time on your OpenGL preview. Of course, the need for UV texture mapping is still on the top of the wish list for all the 3D game builders and others.

Now for the really exciting stuff. Two words: Gizmo and Steamer. These additions give LightWave a powerful character animation tool and a powerful particle and volumetric engine thanks to the addition of Particle Storm Lite when used in conjunction with Steamer. Gizmo is, of course, the incredible plug-in that allows you to create a variety of morph targets and easily apply them where you want at whatever amount you want, rather than set up a messy string of morph envelopes. While it's indispensable for lip syncing, its usefulness has barely begun to be realized. Of course, every rose has its thorns. For a tool designed primarily for lip sync, Gizmo is sorely lacking in sound support.

Steamer brings to LightWave true volumetric lights, particles, and fog. The results can be absolutely stunning, though it requires some serious horsepower to fully take advantage of the plug-in. The Skytracer plug-in also allows some interesting experiments into virtual scene creation, but is not a reliable terra-forming system yet. Hopefully, more robust versions of both are in the works, as there is enormous potential here.

So is LightWave 3D 5.5 worth the price of an upgrade? Absolutely. Morph Gizmo or Steamer alone make the upgrade price a bargain. Factor in all the other new features plus a new interface and this upgrade becomes a must-have. If this is just a .5 leap forward, I can hardly wait for the next version.

An improved user interface makes this upgrade of LightWave 3D a more professional program, while new plug-ins add excitement.



The new LightWave 3D 5.5 interface is easier to navigate and better organized.

CONTACT INFORMATION

LightWave 3D 5.5
NewTek, Inc.

\$1,995 (Alpha, Intel)
\$495 (upgrade from 5.0)
\$695 (upgrade from 4.0)

\$2,995 (SGI, Sun)
\$995 (SGI upgrade from 5.0)

Web: www.newtek.com

mail:
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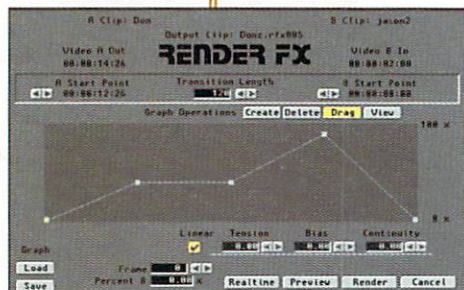
Circle Number 102

BY FRED BERNEY

Rendering
in the Flyer at improved
speeds and with better
auxiliary tools.

RenderFX 2.0

I found RenderFX 2.0 to be a program that no Flyer owner should be without. But before worrying about the word Render, let me put your mind at ease. We are not talking about hours of LightWave 3D rendering. With a quicker rendering mechanism, it is quite the opposite.



The RenderFX
interface is integrated
into the Flyer itself so
you have nothing new
to learn.

CONTACT INFORMATION

RenderFX
ProWave

\$129.95

email:
prowave@aol.com

phone:
(205) 830-2767
(800) 930-2646 (orders only)

Circle Number 103

One of the Flyer's greatest assets—and problems—is its capability for real-time effects. It's an asset because it's in real time, but it's a problem in that some effects are so memory-intensive that they won't run within a project. Luckily, this is one of the problems RenderFX solves.

You start by placing an effect between two video clips in a project. From the Flyer's Tools menu, you select RenderFX and follow the on-screen directions. The program does the rest. You can render a single effect or a whole series of effects. The point is, you do all this within the normal Flyer interface. There's nothing new to learn.

RenderFX renders at the rate of 30 frames per minute. A one-second effect is ready to play in just one minute. Upon completion, the program automatically replaces the effect crouton in your project with the newly created rendered crouton. Nothing could be easier. The program also has the capability to insert audio from the clips that surround the effect so you do not end up with a split edit.

Let's say you want two effects, one right on top of the other. How about a flying trajectory effect mixed with a dissolve? Place the trajectory effect into the project, render it, and then place a dissolve effect right after the rendered effect. Since the rendered effect is now a video clip, the dissolve works and the end result is three images appearing on the screen at the same time. It also can render effects in reverse!

RenderFX is made up of different programs that all appear on the Tools menu. Besides RenderFX, they include KeyFX, OverlayFX, and EnvelopeFX.

KeyFX allows you to render CG keys onto your Flyer clips. You control the fade time and placement. OverlayFX allows you to take any overlay and merge it with a Flyer clip. It opens up a whole new way of editing never before possible on the Flyer.

I found the best part of RenderFX to be EnvelopeFX. This allows you to control the length and movement of an effect. You control how far the dissolve between clips occurs and how long you want to hold a dissolve in place. You can even do 50/50 fades! EnvelopeFX also lets you do a split screen right inside a project. If the two clips are on different drives, you can press a "realtime" button and watch the two clips play simultaneously in real time.

Another new feature of RenderFX 2.0 is the "UndoFX" command. By highlighting any RFX clip, you can put back the original transition and the edit points, make a change, and render it out again. At first glance this may look like a simple little program, but as you start to use it, you will realize that it is one of the most powerful tools you can own.

RenderFX 2.0 is so powerful that I can safely say that if you own a Flyer you need RenderFX. Best of all, the upgrade is free to registered 1.0 users! The small amount of money spent on RenderFX 2.0 for those who don't yet own it is actually an investment. It will more than pay for itself in one or two projects with the time and energy you will save.

BY JIM DAVIS

NewTek's NTSC test signal generator produces 24 different test signals, including SMPTE Bars, Blackburst, and NTSC7 Composite.



Calibar

Calibar is the first of NewTek's new line of miniature video test products. The unit, the size of a ball point pen, is an NTSC test signal generator that produces 24 standard test signals. Calibar can be used for calibrating video monitors, VCRs, TBCs, and other video gear used in the typical video system. Included with Calibar is an AC adapter, three BNC adapters (BNC to BNC, BNC to RCA male, and BNC to RCA female), and some Calibar glasses. The Calibar glasses use blue gel filters to calibrate monitors without a blue-only function. More on that later.

One of two ways Calibar can be powered is with the provided AC adapter. This allows studios to use it continuously as a house sync generator via the blackburst signal. It also can be powered using a standard six-volt photo battery in the field. NewTek recommends the use of lithium batteries with the Calibar, but an alkaline battery will work as well. Battery life is about two hours of continuous use. Calibar will automatically detect a low battery condition and shut off. Batteries compatible with Calibar include Radio Shack #23-266, Energizer #A544, and Duracell #PX28A.

I found operating Calibar to be easy. Double-clicking the small red button turns the unit on. The first test pattern displayed is SMPTE BARS. You can cycle through the test patterns by clicking the button. When you are done using Calibar, holding the button down (instead of clicking) will turn it off. Calibar's output is extremely accurate with a 10-bit resolution to a standard BNC connector. It looked great on my Scope. The output level is the standard one-volt into a 75ohm load.

Here is a small sample of the 24 test patterns and some possible uses for them:

- **SMPTE BARS**—A multipurpose video test signal used to adjust video monitors and check system performance. This signal is perfect for doing a Toaster AutoHue and Flyer Calibrate. You also can use it to set the chroma level, chroma phase (hue), brightness, and contrast of your monitors. If your monitor does not have a blue-only function, you can



use the supplied blue gel glasses to set the chroma level and chroma phase controls. Calibar's manual includes a detailed procedure for setting monitor controls.

- **MULTIBURST FCC**—Used to test the frequency response of your system at specific frequencies. The burst frequencies are .5MHz, 1.0MHz, 3.0MHz, 3.38MHz (the video subcarrier), and 4.2MHz.
- **MODULATED RAMP**—Used to measure differential gain and phase.
- **BLACKBURST 7.5 IRE**—Reference Black Level that can be used as house sync.
- **5MHz SWEEP WITH MARKERS**—Used to measure frequency response. Markers at 1MHz, 2MHz, 3MHz, 4 MHz, and 5MHz. You can use this to measure how many TV lines of resolution your system is good for. These markers provide reference points for checking level deviation in the video passband.
- **BLACKBURST 0 IRE**—Reference black level.
- **NTSC7 COMPOSITE**—This signal consists of a 100 IRE bar, a 2T sine-squared pulse; a 12.5T modulated sine squared pulse; and a 90 IRE five-step staircase modulated with a +/- 20 IRE subcarrier.

Calibar is a great piece of test equipment. Its output looked as good as signal generators costing 10 times its \$349 price. If you need an inexpensive signal generator to use as your house sync or as an NTSC signal source in the field, I highly recommend Calibar.

CONTACT INFORMATION

Calibar
NewTek, Inc.

\$349

Web: www.newtek.com

mail:

8200 IH-10 West, Ste. 900
San Antonio, TX 78230
(210) 370-8000
(800) 843-8934

Circle Number 104

Premieres

NEW PRODUCTS TAKE A BOW ON OUR STAGE

LIGHTWAVE 3D PRODUCTS

Con-Motion 2.0



Con-Motion 2.0, by United Magnetic Video, is a second generation advanced character animation program. Con-Motion 2.0 exchanges information with LightWave 3D in real time and contains a newly designed user-friendly interface tailored to overall functionality. It also includes a time line in the Projects Editor to give you total control over the desired animation of your character. At any time during the project's creation, you can see the outcome of the animation in LightWave.

You can assign to a group position a value for tension, bias, and continuity. Con-Motion will automatically apply these values to each group component for that position. A special feature keeps the character walk cycle on the surface without floating, sinking, or sliding. Contact United Magnetic Video, 736 E. Moreno Ave., Colorado Springs, CO 80903, (719) 634-4015, www.csprings.com/umv.

Circle Number 109

STRIPPER FOR LIGHTWAVE 3D



Stripper for LightWave 3D from Dynamic Realities gives users the ability to neatly package LightWave scene, object, image, and Particle Storm files into one Zip file, while keeping the directories intact. With a few mouse clicks, it can clean up old animation files off your hard drive. List prices are \$175 for Intel and Mac; \$275 for DEC Alpha. Contact Dynamic Realities, 1900-A Pewaukee Rd., Waukesha, WI 53188, (800) 944-5520, www.dynamic-realities.com.

Circle Number 110



GenesisVFX Positron Publishing, Inc. introduced GenesisVFX, a high-end visual effects plug-in for LightWave 3D. With GenesisVFX, users can create a multitude of effects, including outer space effects, lens flares, lightning, sparkles, glows, heat distortions, smoke, gas clouds, color, and even psychedelic images. The same package can be used to add subtle nuances to images.

GenesisVFX has the power to perform effects for movies, TV shows, commercials, games, and Web page development. Its rendering engine is based on algorithms not in use by any other package, strengthening the result of the effects. The program can be used in artistic avenues as diverse as architecture, fine art, commercial art, and graphic design. The result may be text with lightning surrounding it, a glowing logo, or even a funky T-shirt design. For users on a deadline, Genesis ships with hundreds of pre-built effects. Existing effects can be modified to meet a user's specific needs. The list price is \$419.95. Contact Positron, Inc., 2605 S. 156th Cir., Omaha, NE 68130, (800) 365-1002, www.3dgraphics.com.

Circle Number 111

NEW LIGHTWAVE PRODUCTS

Con-Motion 2.0

Stripper

RealTools

GenesisVFX

World Construction

Set Version 3

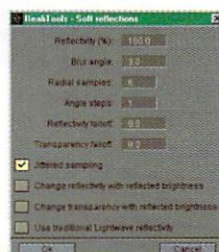
NEW TOASTER/FLYER PRODUCTS

VisualFX for ImageFX

MegFX

Snapshot

RealTools



From the company that brought you Particle Storm and IMPACT comes RealTools, a set of 14 utilities for LightWave 3D. Some of the tools included in this new Dynamic Realities plug-in are: Soft Reflections shader, an advanced lighting engine, a Fresnel Shader, Video Lines and Video Noise, Layout Distance, and Comic Shader. Contact Dynamic Realities, 1900-A Pewaukee Rd., Waukesha, WI 53188, (800) 944-5520, www.dynamic-realities.com.

Circle Number 112



World Construction Set Version 3

Questar Productions has announced World Construction Set Version 3 (WCS V3). With an exclusive new Terrafactor technology, WCS V3 can apply a variety of effects to create lakes, roads, building sites, streams, shadows, glaciers, orchards, fields, dams, hills, mountains, and other terrain features.

With WCS V3, you can animate any amount of terrain with photorealistic results. You can even import real data, including USGS DEMs, or you can build your own terrain. WCS V3 enables you to easily add trees, 3D evolving clouds, waves, reflections, breakers, and beaches.

WCS V3 can read and write LightWave 3D scenes and includes a 3D compositing plug-in. This lets you integrate LightWave objects within your WCS environment for the best of both worlds.

Extensive interface enhancements make WCS V3 faster and easier. Included with the program is WScript, a scripting language that supports Arc/Info and ArcView for photorealistic visualization of GIS data. WCS V3 is available on Intel, DEC Alpha, and PowerMac for a list price of \$940. An Amiga version is scheduled to ship in the first quarter of 1998 for the same price. Contact Questar Productions, 1058 Weld County Rd., No. 23.5, Brighton, CO 80601, (303) 659-4028, www.QuestarProductions.com.

Circle Number 113



VISUALFX FOR IMAGEFX

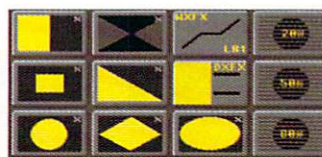
Visual Inspirations has released Volumes 3 and 4 of VisualFX for ImageFX. This program is designed for use by Video Toaster/Flyer owners. These volumes differ from the first two in that Volumes 1 and 2 are Transition effects, whereas Volumes 3 and 4 are Templates.

Some of the effects that are included in Volumes 3 & 4 are: Multi-Layer Composite (unlimited amount of layers with fade in and out options), Alpha Channel Composites, Scrolling Backgrounds, Chroma Key, Moving Brushes, RainDrops, Burning Screen, CG Bullet Build, Blue and Green Multi-Composites, Rack and Focus, Camera Zoom, Magnifying Glass, Scrolling, LetterBox, and Split Screen Composites. Each volume retails for \$199.95. Contact Visual Inspirations, 809 W. Hollywood, Tampa, FL 33604, (813) 935-6410, www.vionline.com.

Circle Number 114



TOASTER / FLYER PRODUCTS



MegFX

MegageM has released MegFX, a collection of real-time video layering effects (LayerFX) and split-screen effects (SplitFX) for the Video Toaster/Flyer.

MegFX includes 13 LayerFX, which permit instant layering of Flyer video clips and other video material, and 28 SplitFX for a variety of video split screens. LayerFX includes varying degrees of layer mix percentages and SplitFX includes different shapes and durations of split screens. These new video mixing effects work directly in Flyer projects to provide new types of video mixing and splitting of two Flyer clips playing simultaneously.

MegFX is available now, priced at \$49.95. Contact MegageM, 1903 Adria Ave., Santa Maria, CA 93454, (805) 349-1104, www.megagem.com/videoems.html.

Circle Number 115

Snapshot

DVS Direct announces Snapshot for NewTek's Video Toaster/Flyer system.

Snapshot automates the task of grabbing still photos to Toaster Framestores or Flyer stills and includes a GPI foot control. It is perfectly suited for the wedding and event producer needing to digitize large numbers of photographs quickly and easily. The foot controller enables you to keep your hands free to operate the camera and handle the photos. You don't need to touch the keyboard or mouse until you're done with the digitizing process. Snapshot automatically names the stills or framestores in the order they are grabbed. This enables you to grab a large number of pictures in the order needed and then move them quickly into a project. Snapshot requires Toaster software 4.1 or higher and costs \$69.95. It can be ordered direct by calling (800) 379-7267. Contact DVS Direct Customer Service, 69 Beaver Dr., DuBois, PA 15801, (814) 371-5640, www.dvdirect.com.

Circle Number 116

Surf Report

A ROUNDUP OF ONLINE RESOURCE SITES

ASSEMBLED BY GEOFFREY WILLIAMS

All sites were active at the time of this writing, but sites come and go with great frequency. Check out the **Surf Report Web site** for direct links and updates for all of these areas. If you know a Web site that you think should be included in the Surf Report, please email the URL to cbp@cris.com.

NEWTEK:

www.newtek.com

This is the place to go for the latest NewTek news, LightWave 3D tutorials, updates, and other useful information.

SURF REPORT ONLINE:

www.cris.com/~cbp/surf_report.htm

You might not want to type in these sites, so jump on over to my list to access these sites online and use it to point and click to sites you want to explore.

NEWTECHNIQUES:

www.studiovisions.com/newtechniques

This is Joe Tracy's *NewTechniques* Web site that contains news, information, updates, contests, and behind-the-scenes information pertinent to *NewTechniques* readers.

USENET NEWSGROUPS

rec.video.desktop.toaster
comp.graphics.apps.lightwave

MAILING LISTS

LightWave Mailing List: Join by emailing listserv@listserv.rc.arizona.edu and in the body of the message type SUBSCRIBE LIGHTWAVE.

Toaster/Flyer Mailing List: Join by emailing listserv@listserv.rc.arizona.edu and in the body of the message type SUBSCRIBE TOASTER.

NEW LINKS OF INTEREST

Studio Visions: www.studiovisions.com

More than just the home of the *NewTechniques* page, this site also offers an Amiga Updates news section and *The Flyer Mastery Guide*, which gives you info on Joe Tracy's new book as well as sample tips and excerpts.

WaveRider: www.vvm.com/~lara/

Includes a number of tutorials of interest to Toaster/Flyer users, a list of fellow Flyer owners, and information on camcorders and shooting video.

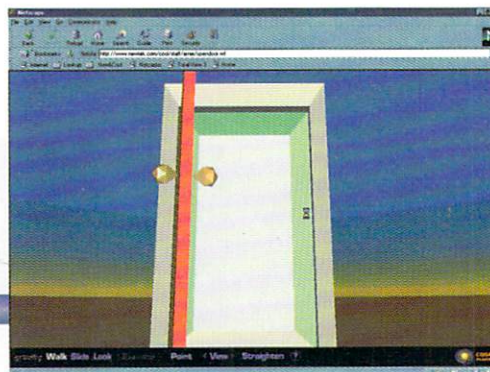
LIGHTWAVE 3D SITES

TNG's LightWave Home Page:

www.mztng.com/lwindex.htm

This site has a huge collection of LightWave 3D links put together by Moshe Zafrany. It is well organized under the categories of Related Software, Magazines & Books, Courses, Info & Tutorials, Platform Support, Galleries, Contests, and many other topics. One of the most detailed and informative LightWave link sites I have seen.

A sample VRML world saved from LightWave 3D using the VRML 2.0 plug-in found at www.newtek.com/cool/staff/arnie/vrml2.html



The Unofficial SGI Resource Guide:

206.162.42.250/falchion/sgi/sgi.html

This is a site for the Irix LightWave 3D community, with news and technical information that make it the best resource for LightWave SGI users.

PLUG-IN SITES

One of the most useful things on the Internet for LightWave 3D users is the many freely downloadable LightWave plug-ins that dramatically expand the power of LightWave. This was always the plan with the NewTek designers, that LightWave would continually grow and expand with the creative developments by the many third-party developers. Not only are there many commercial plug-ins, but thanks to the generosity of countless programmers, there are also numerous plug-ins available that you can download for free. Here are some of the latest I have found in my Internet wanderings:

VRML 2.0:

www.newtek.com/cool/staff/arnie/vrml2.html

This comes from the NewTek site and will be a very welcome addition to those in the know. The Virtual Reality Modeling Language is one of the hottest new technologies on the Internet, and this great plug-in makes it possible to save scenes as VRML 2.0 worlds directly from Layout. Way cool and available for Windows 95/NT (DEC Alpha) and PowerMac.

LightWave plug-ins:

amber.rc.arizona.edu/lw/plugins.html

This site offers a gold mine of FD plug-ins created by Marvin Landis for the SGI and Amiga platforms. His offerings include Decimate (polygon reduction using triangle decimation), DEMScape, InventorView, InventorSave, Level of Detail Object Replacement, SGI_QuickTime, and SGI_Movie. The site also has 19 FD plug-ins written by others.

Bryan Ewert: www.cadvision.com/ewert/

Besides some great information on LightWave C++ classes, Bryan's site has several plug-ins, including the freeware Angle Between Points, Bounding Box², Curve To Motion, Distance Between Points, Squash & Stretch, Spherize², and Taut. On the site you'll also find two shareware plug-ins: Load From Scene and RSVP. The site also has writings of interest to Amigans.

Diseño Digital:

spin.com.mx/~chepe/main_eng.html

This site offers a Flares plug-in called FlareMaster for Modeler to create scenes with flares based on the points position in the active layers. There are also two other downloadable Intel plug-ins; one to align selected points in any axis, and one to convert Pantone numbers to RGB values.

Joe Angell Programs Page:

www.tmproductions.com/Programs.html

Amiga users feel pretty left out these days, but Joe has been coding away to make a few Amiga-based utilities. FixLWS removes the extra carriage returns (CR) in PC LightWave 3D scene files, ending the problem of the Amiga adding unprintable characters to the files when they are ported over. 12to24 takes 12-bit images and converts the color values to a 24-bit color space, handy if you found a color you like in DPaint and want to use it in LightWave.

Koizuka:

www.ss.ij4u.or.jp/~koizuka/garakuta.html

Most of this site, which is largely in Japanese, will probably be unreadable to you, but if you need to deal with DirectX you will want to give it a visit. Lws2x is a Win32 console application that converts LightWave 3D scene or object files to DirectX Retained Mode .X file format. Once downloaded, there are instructions in English.

LOD LightWave Plug-in:

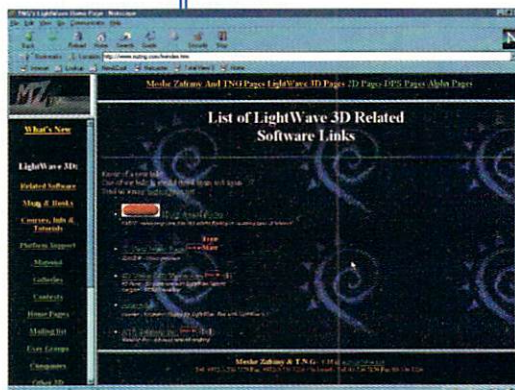
amber.rc.arizona.edu/lw/lod.html

Objects further away from the camera don't require as much detail. This plug-in by Marvin Landis allows the user to specify replacement objects in a scene based on the distance from the object to the camera. It is available for SGI, Amiga, Intel, and Alpha platforms.

WIPEOUTS

There has apparently been some rough surf lately. I have been unable to contact the following sites that were mentioned in past issues: The Trading Zone, # LightWave Homepage, and Imaginative Systems. I am always on the lookout for new sites. If you spot one that you like, let me know at cbp@cris.com.

Moshe Zafrany's TNG LightWave Home Page contains a huge collection of LightWave 3D-related links.



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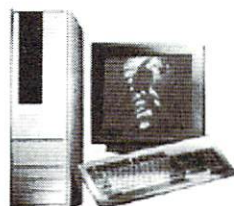
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Panasonic

AG-EZ1

3-CCD Digital Videocassette Camcorder

- Three CCDs with 270,000 pixels each are horizontally staggered for optimum resolution.
- Digital recording system delivers incredible 500 lines of horizontal resolution and virtually no noise. The signal-to-noise ratio is 54dB, an improvement of 6-9 dB over conventional analog systems. This actually represents a S/N ratio 2-3 times better than existing camcorders.
- Audio is also recorded digitally using PCM (Pulse Code Modulation) for quality that rivals CDs. You can choose between two-channel 16-bit recording or two sets of 12-bit stereo, with the second set reserved for uses such as narration.
- Includes a huge 1.5" 180,000 pixel color viewfinder. The viewfinder also tilts 120 degrees vertically for shooting subjects from high or low angles, & its professional size means you don't have to press it against your eye to see the picture.
- Built-in Digital Electronic Image Stabilizer (DEIS) compensates for jittery video and is particularly effective when the camcorder is employed.
- Equipped with 10:1 power and 20:1 digital zoom lens. Both zooms are adjustable in four speeds (3.5 seconds—15 seconds) based on how hard or soft the zoom toggle is pressed. To set up a shot quickly, a Turbo Zoom function moves from tight to wide angle, or vice versa, in under two seconds. For extreme close-ups the lens can focus up to 1/4 inch from the subject.



- Digital Photo-Shot lets you record a still-frame for about six seconds, while audio continues as normal. This feature is great for creating video photo albums or insurance tapes, as 290 still pictures can be recorded on a single 30-minute tape and 580 shots on a 60-minute tape. Using the TopScan feature any shot can be found easily.



GR-DV1/GR-DVM1

CyberCam Digital Video Camcorders

The GR-DV1 and GR-DVM1 combine a 570,000 pixel CCD with 4:1:1 digital component recording to deliver razor sharp pictures with 500 lines of resolution. Digital image stabilizer eliminates camera shake without affecting resolution.

DIGITAL AUDIO
CD quality audio is now available. Digital audio recording delivers 2 channels at 48kHz (16-bit) sampling for highest quality or four channels at 32kHz (12-bit) when dubbing or mixing is required.

DIGITAL EFFECTS
A multitude of special effects are possible with the GR-DV1 including wipes, fades, and dissolves. In addition, some specialized effects such as Classic Film, Monotone, Sepia and Strobe, can be recorded in the camcorder or can be played through docking station—even if they weren't originally recorded.

SNAPSHOT/QUICKPIX/ANIMATION
• Snapshot mode captures still images with a white border around it and even adds a shutter sound effect. In Motor Drive mode multiple snapshots get recorded in rapid succession with an interval of 0.7 seconds between pictures. A Snapshot Search feature lets you put together a video album using captured photos.

• QuickPix or 5-second-record mode automatically records five second clips of video and audio when start button is pressed.

• Animation mode records scenes for just 1/8th of a second each time the start button is pressed. When inanimate objects are recorded with slight changes in position between shots, an animation effect is rendered to the objects making them come alive.

GR-DVM1

Same features as the GR-DV1 except it adds the world's first high-resolution 2.5-inch polycrystalline silicon TFT active matrix monitor. The high-definition 180,000-pixel LCD offers incredible viewing with a horizontal resolution of 400 lines.

DIGITAL ZOOM
10X variable speed optical zoom with built-in macro delivers razor sharp images from a distance—or as close as 1.5 cm. A 20X digital zoom and 100X Super Digital zoom allow image capture from tremendous distances while retaining a good degree of sharpness.

USER FRIENDLY MENU SYSTEM
Zoom rocker control is used to make the different selections as they appear in the menu viewfinder so you can pick settings from the menu without taking your eye away off the viewfinder. This design also keeps controls and switches to a minimum.

DOCKING STATION
Multi-function docking station offers even more sophisticated playback capabilities, plus advanced editing functions:
• R A (Random Assembly) editing enables programmed rearrangement of up to 8 scenes at a time—just by marking the beginning and end of scenes.

• Insert editing and 4-channel stereo audio dubbing are possible using the docking station. Video insert allows new video to be inserted over prerecorded segments without disturbing the audio segment. When inserting audio, 16 bit (48kHz) full audio insert replaces recorded audio without disturbing the existing video track. In the 12 bit (32kHz) mode, 2 additional audio tracks can be added to the existing audio and mixed.

• In addition to the five special effects available through the docking station, there are 17 scene transitions that can be selected.



Panasonic

AG-DP800H S-VHS 3-CCD Digital Signal Processing Camcorder



- Three high-density 380,000 pixel CCDs with half-pitch pixel offset achieves over 750 lines of horizontal resolution, a S/N ratio of 60dB and remarkable sensitivity of 18 at 2000 lux. Additionally the Frame Interline Transfer (FIT) CCDs minimize vertical smear so you maintain impressive picture quality even in very bright illumination.
- Digital Signal Processing circuitry provides four valuable benefits:
1) Consistently reliable up-to-spec performance.
2) Fine adjustment of a wide range of parameters.
3) Memory storage and instant recall of specific settings.
4) More flexible and higher quality image processing, as well as easier maintenance.
- Six Scene File modes. There are two user modes for custom digital parameter settings including Horizontal Detail, Vertical Detail, Chroma and Dark Detail, and Color Correction. The four preset modes are normal, fluorescent, special and sparkling.
- In addition to regular AGC (Automatic Gain Control), Supercam has a Super High Gain mode. At F1.4 this enables shooting under illumination as low as 2 lux while retaining detail and color balance.
- Synchro Scan function allows flicker-free shooting of computer monitors. Electronic shutter increments can be set variably from 1/60 seconds to 1/253 of a second.
- Built-in internal time code generator lets you record with SMPTE LTC/VITC (Longitudinal/Vertical Interval) time code.
- Two hi-fi stereo audio channels with a dynamic range of 80 dB, as well as two linear audio channels with Dolby NR. Normal/Hi-Fi recording is selectable. Uses XLR connectors to further ensure high-quality sound.
- Has a 26-pin connector on the back that outputs a composite or component video signal. This enables convenient backup recording using an additional VCR equipped with a 26 or 14-pin connector.
- Phantom power can be supplied to an optional microphone. Power can be switched off to prevent battery drain when not in use.

JVC

GY-X3 3-CCD S-VHS Camcorder



By employing professional camera technology in new economical ways, JVC has succeeded in bringing to market a professional 3-CCD camera that breaks all previous price barriers. The new GY-X3 delivers all the performance of a high end 3-CCD camera—high resolution, high sensitivity, low noise and natural color—at an incredible price.

- Features:**
- Three 1/3" CCDs provide a sensitivity of 2000 lux at F8.0, signal-to-noise ratio of 60dB and 650 lines of horizontal resolution.
 - Low light capability allows you to shoot in as little as 4 lux and still have bright pictures with good resolution and strong, vivid colors.
 - Full Auto Shooting (FAS) mode instantly adjusts to changes in shooting conditions. You can go from bright outdoors to indoor lighting and gain, iris, audio level and color balance will all be automatically adjusted.
 - Variable Scan View allows flicker-free shooting of a computer monitor.
 - Has a built-in 14:1 (5.5-77mm) continuously variable speed zoom lens. The amount of pressure applied to the rocker determines the speed of the zoom. Both the iris and zoom can be controlled manually if desired.
 - Built-in Control Track (CTL) time code generator as well as a time/date generator. The advanced CTL time code generator has a "scene finder" function that records an identification code each time you start taping. This lets you easily advance to the next or previous scene when using the JVC Edit Desk system.
 - Large high resolution 1.5-inch viewfinder displays comprehensive status indicators.

GY-X2B 3-CCD S-VHS Camcorder



- Newly designed three 1/2" CCD image sensors deliver 750 lines of horizontal resolution & superb signal-to-noise ratio of 62dB.
- New micro-lens technology provides exceptional sensitivity of F8.0 at 2000 lux and LOLLUX mode lets you shoot with almost no light! Shoot superb footage with excellent color balance at a mere 1.5 lux.
- Variable Scan allows flicker-free shooting of a computer screen.
- Quick Record Mode - when turned on the camera is set to the auto iris even if lens is set at manual. Also activated is (ALC) Automatic Level Control and EEI Extended Electronic Iris which provides both variable gain and variable shutter. Now you can shoot continuously from dark room to bright outdoors without having to adjust gain, iris or ND filter.
- Full Time Auto White circuit lets you move from incandescent to outdoor lighting without changing white balance or the filter wheel. Dual output system allows camera output to be connected directly to an external recorder.

KY-D29 3-CCD Color Video Camera

One of the most sensitive cameras ever developed, the KY-D29 sets the standard for 3-CCD cameras and is also ideally suited for today's digital recording formats. With a sensitivity F11 at 2,000 lux, the KY-D29 can shoot in light as low as a remarkable 0.35 lux. It also offers a signal-to-noise ratio of 65 dB (with its DNR function on), and delivers 650 lines of horizontal resolution. The exceptional resolution and sensitivity of the KY-D29 are achieved by three new 760,000 pixel 2/3" interline transfer (IT) CCDs, the highest pixel count in the industry.

- All-New Digital Signal Processing**
- Advanced 14-bit Digital Signal Processing (DSP) and 3-dimensional Digital Noise Reduction (3D DNR) circuitry make this camera ideal for acquisition with today's popular digital formats, especially JVC's revolutionary new Digital-S.
 - DSP within the camera provides astonishingly crisp, high-quality images, while minimizing analog distortions and noise. DSP also makes the camera more flexible and easy to use. It even smooths the transitions between gain and white balance settings so that viewers won't notice sudden changes of settings while the tape is rolling.
 - Digital signal processing is enhanced with new 3D digital noise reduction circuitry to make it even more practical. By mixing multiple frames to cancel out random noise, using motion detection to minimize lag, JVC's exclusive 3-D DNR produces dramatic results, far superior to any other DSP camera.
- Super LoLux for Extremely Low Light Shooting**
- Incredible new Super LoLux technology allows you to obtain a broadcast-quality picture in light as low as 0.35 lux. This extraordinary low light capability is the best ever achieved and is made possible by utilizing JVC's exclusive LoLux dual pixel readout technology (increasing gain by 6 dB without introducing noise) while at the same time doubling the pixel readout integration time to 1/20 seconds.
- Versatile Docking Capability**
- Extremely high quality 4:2:2 digital recordings can be made by docking the KY-D29 to JVC's Digital-S BR-D40 dockable recorder. This digital comb produces recordings far superior to any component analog camcorder, or 4:1:1 digital camcorder. The KY-D29 also docks directly to JVC's BR-DV10 DV-format and BR-S422 S-VHS dockable recorders and dock to Betacam SP recorders using an adapter.
- Features for a Wide Range of Applications**
- The KY-D29 is loaded with a wealth of high-performance features, making it ideal for a wide range of broadcast and professional applications. Built-in continuous auto black (CAB) continuously takes a black balance setting, and full-time auto white for continuous compensation of color temperature changes, balance the camera in real time, all the time. This allows you to concentrate on getting the shot, and not on adjusting the camera.
 - Because different shooting situations require flexibility, the KY-D29 offers selectable vertical resolution. In the Standard Mode, the camera produces 380 TV lines of vertical resolution. However, in the "V-Plus" high vertical resolution mode, the camera puts out 420 TV lines of vertical resolution, allowing you to increase vertical resolution without sacrificing sensitivity or lag, while maintaining 850 TV lines of horizontal resolution.
 - Focusing is easier than ever with Accu-Focus. By momentarily decreasing depth of field, fast & critical focus is achieved instantly.
 - Commonly used features can be activated without having to scroll through layers of menus. Features such as shutter control, variable scan, black stretch, black compress, CAB, iris modes, Accu-Focus, DNR and zebra are all menu-free. And for those times when events move so fast it prevents you from making any settings whatsoever, the KY-D29's Full Auto Shooting (FAS) mode controls all of the camera's requiring you control only the focus, zoom and trigger.
 - Other camera features include a built-in time/date, built-in zebra level selection switch, an f-stop display in the viewfinder, and a "battery remaining" display for Anton Bauer battery packs. A special Black Stretch/Black Compression circuit is also included.



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Panasonic



AG-1980 S-VHS Hi-Fi Editing VCR

Incorporates advanced digital signal processing and digital noise reduction circuitry to deliver such high picture quality—that it's third-generation picture looks almost as good as first-generation offerings from other VCRs in its class. In addition, the AG-1980 also features a full field TBC, insert and assemble editing, Hi-Fi stereo, quick response mechanism and a remote editing terminal.

- Still the only VCR in its class to provide near frame accurate editing. When used with edit controllers from Videoics, FAST and FutureVideo, the AG-1980 achieves an accuracy of ± 2 frames. And, the 5-pin edit terminal on the rear panel makes it very easy to set up an editing system.
- Performs all assemble and video insert edits as well as audio video dubbing. Also has independent linear audio input and output for more flexible audio dubbing.
- Hi-Fi stereo audio with a frequency response of 20Hz to 20kHz and a dynamic range of 90dB. It also has Hi-Fi recording level control, headphone monitor terminal with volume control and a mic input terminal.
- Advanced dual-loading mechanism features a quick response time, requiring only 0.5 seconds for a picture to appear from Stop mode and 1.9 seconds from FF/REW.

- **Digital Processing:**
—Digital Comb Filter using advanced 3-dimensional system provides complete Y/C (luminance/chrominance) separation. This practically eliminates color and luminance blurring.
—Field coefficient Digital Noise Reduction (DNR) circuitry processes the Y and C signals separately, thereby boosting the signal-to-noise ratio and reducing noise during playback.
—Has a built-in full field TBC (Time Base Corrector) that eliminates even the smallest of jitter, skew, head impact error and color blurring. Invaluable for editing, the TBC helps maintain high picture quality even through the third-generation.
- Besides its digital circuitry, the AG-1980 also features laminated video heads. Clearly superior to heads of conventional ferrite they provide richer, more vibrant color reproduction and a higher signal-to-noise ratio.



AG-DS545/AG-DS555 S-VHS Source Player/ S-VHS Edit Recorder

- Digital Signal Processing for improved picture quality, and for maintaining uniform picture quality during editing. Digital processing circuits include:
—Chroma Aperture Compensation (CAC): Eliminates color blurring and expands chroma bandwidth.

- Digital Noise Reduction (DNR): Processes Y/C signals separately to boost S/N Ratio by minimizing noise during playback.
- Digital Comb Filter: Advanced 3-dimensional system for total Y/C separation providing reduced color and luminance blurring.

- Employs amorphous video heads that have a higher magnetic coercivity than conventional ferrite heads. Expanded frequency response from the amorphous heads enhances picture quality by minimizing color blurring.
- Built-in LTC/VTC (Longitudinal/Vertical Interval) time code reader/generators for absolute frame accurate editing.
- Two hi-fi stereo channels with a dynamic range of 90dB as well as 2 linear channels with Dolby NR. Each audio channel has its own input (AG-DS555 only) and output with individual channel-level setting capability and XLR connectors.
- Performs audio split editing which lets you set the edit-in and edit-out points separately from those for video.

- 3-dimensional digital TBC provides excellent dropout compensation.
- IQ mechanism delivers precise, high-speed operation. The dual-loading system achieves high-speed response while protecting tapes and heads. The tape transport mechanism uses five direct drive motors, including two reel drive motors.
- Capstan Control System with large capstan spindle allows high-speed search at 32x normal speed (with color picture).
- 3 rack units high, they are compact for easy space saving installation. 19" rack-mountable with optional AG-M730.



WJ-MX20 Digital A/V Mixer

The WJ-MX20 has up to 298 wipes and fades plus RS-422 interface and GPI input for compatibility with a wide variety of editing systems. It also provides an extremely clear picture thanks to a 13.5 MHz sampling frequency, 460 lines of resolution and a signal-to-noise ratio of 50 dB. Other key features include Chroma Key, Scene Grabber and on-screen display settings.

- **Digital Special Effects**
—5-step field strobe for clear still pictures with adjustable intervals. Field still can be switched to frame-still for increased vertical resolution.
- Field of frame freeze for clear still pictures.
- Digital effects include: mosaic (size is adjustable in 5 steps), chroma (saturation levels are adjustable) and negative/positive video reversal.



- **Wipe Pattern**
—Up to 298 wipe patterns can be created from a combination of 23 basic and special patterns.

WJ-MX50 Digital A/V Mixer

- Four input switcher and any two sources can be routed to the program buses.
- Two-channel digital frame synchronization permits special effects in each A/B bus.
- Combination of 7 basic patterns and other effects creates 287 wipe patterns.
- External edit control input for RS-232C or RS-422 serial controls. Also has GPI input.
- Wipe boundary effects: soft/border (bold, eight background colors available).
- Digital effects: strobe, still, mosaic, negative/positive, paint, monochrome, strobe, trail, and A/V sync.
- Real-time compression - entire source image is compressed inside a wipe pattern.

- "Scene Grabber" moves a pattern, upholding the initially trimmed-in picture integrity.
- Fade-in and fade-out video, audio, titles individually or synchronously faded.
- Down stream keyer with selectable source from character generator or external camera.
- Eight memories for instant recall of frequently used effects.
- 8 preset effects include: Mosaic Mix, Position Stream, Corkscrew, Bounce, Flip, Shutter, Vibrate, and Satellite.
- Audio mixing capability of 5 sources with 5 audio level adjustments.



BT-S1360Y 13" Color Video Production Monitor

The BT-S1360Y is a full-function, professional 13" production monitor with a wealth of features. They include: superb 420-line horizontal resolution, S-Video input and output, advanced automatic white balance circuitry, blue-only mode, undercand and pulse-cross. All this housed in a rugged, rack mountable metal-hybrid cabinet. So, for long-term reliability in any professional application, the BT-S1360Y is the ideal choice.

- Incorporates advanced, proprietary white balance circuitry that stabilizes white balance to provide outstanding picture performance automatically.
- S-Video input and advanced video circuit technology provides a remarkably sharp picture with over 420 lines of horizontal res.
- External sync inputs and outputs provide for synchronization with other equipment fed with the same sync signal.
- Blue Only mode plus Chroma selection provides a monochrome image for fine adjustment of contrast, brightness, chrominance & hue.
- Pulse Cross - displays horizontal and vertical intervals at the center of the screen so you can examine data in the blanking area and also video/burst timing.
- Two sets of video/Audio inputs and outputs.

- Undercand - shrinks the scanned area of the picture tube approximately 5% enabling the entire active picture area to be displayed. Lets you detect intruding cameras and mike booms.
- Switchable color temperatures of 6500°K (broadcast standard) or 9300°K (for pleasing picture).
- Built-in speaker and headphone jack.
- Rack-mountable with optional BA-131 brackets.



BT-S 1360Y Olympic Demo Special!

We have a limited stock of BT-S1360Y monitors that were used by Panasonic exclusively at the 1996 Olympics in Atlanta. Used only by Panasonic engineers in broadcasting the summer games, these monitors are like new.

Demo Special \$599 (\$400 less than our regular selling price on this monitor)



SONY

SVO-2000 S-VHS Hi-Fi Editing VCR

The SVO-2000 is a powerful, yet easy-to-use S-VHS Hi-Fi editing recorder. Two SVO-2000's combined with the optional RM-250 Edit Controller form a cost-efficient cut-only editing system - with assemble, video insert, audio dub and program editing.



Superb Video and Audio Performance

- S-VHS format delivers 400 lines of horizontal resolution and consistent, clear image reproduction for superior editing results.
- **Adaptive Picture Control (APC)** for optimum picture. In record mode, APC automatically tests an inserted tape and checks the condition of the video heads. It then adjusts the recording circuitry to capture clear and crisp images. In playback, APC automatically sets the ideal balance of picture sharpness and clarity.
- Hi-Fi stereo recording system has a wide frequency response of 20Hz to 20kHz and a superb 90dB dynamic range, and individual recording level controls for the left and right channels.

Editing Features:

- The SVO-2000 has a Control-Edit 5-pin remote terminal that allows it to be controlled externally. Connects directly to the optional RM-250 for easy setup.
- Control-S input and output terminals allow two SVO-2000s to be connected for synchro editing—without the RM-250.
- RM-250 also offers program editing capability, which allows automatic sequential editing of up to 20 pre-assigned scenes.

SVO-2100 S-VHS Editing Recorder

Excellent Audio and Video

- S-VHS format provides excellent picture quality and consistent, clear image reproduction for superior editing results.
- For-channel audio recording. Two-channel Hi-Fi stereo, with a superb 90dB dynamic range and a wide frequency response of 20Hz to 20kHz. Plus two editable longitudinal (normal) audio tracks. By using the AUDIO MONITOR selector, longitudinal audio or Hi-Fi audio can be monitored.
- Auto head cleaner removes tape debris preventing head clogging and deterioration of picture quality.
- Continuous auto repeat playback function.

Playback and Recording Functions

- By connecting multiple SVO-2100's via the VIDEO IN connector or THROUGH connector, they can simultaneously record the same program.
- When the Power On Recording or Power On Playback is set, it automatically starts recording or playing back a program the moment the power is supplied from externally connected equipment. This allows untended automatic VTR operation.

Accurate Editing and Remote Control

- Optional SVBK-10 (RS-232C Interface Board with LTC time code reader and generator) allows the SVO-2100 to communicate with external equipment such as computers or Sony's PAX-100/120 editing system.



- When used with a computer, the system can be used to create computer graphics, thanks to the SVBK-10 supporting commands to Number Frame Record and Auto Edit.
- When used with the FXE-100/120, you have a cost effective frame-accurate (LTC timecode) editing system with full Assemble, Insert, Audio Split, A-roll, and A/B-roll editing.
- The SVO-2100 can be operated with an optional foot switch. Recording can be started or stopped from the external foot switch connected to the Foot SW jack of the SVO-2100. During recording, the Rec Tally signal can be output from the Foot SW jack. The Rec Tally signal is useful when used with a monitor with Tally IN capability.
- Optional SVRM 100A or RM-V200 Remote Control Unit allows remote control of the SVO-2100's basic functions.



JVC PROFESSIONAL

SR-S365U S-VHS Recorder With RS-232 Control

With high-resolution S-VHS, jog/shuttle search and built-in RS-232C interface, the SR-S365U is the foundation of an affordable pro editing system. Convenient functions such as insert/assemble editing and Random Assemble Editing let you produce edited programs right away. And since the SR-S365U is designed for use with the professional RM-G800U Edit Controller, putting together a high-performance editing system with all the benefits of precision CTL time code editing has never been easier.



- S-VHS picture quality with 400 lines of horizontal resolution plus noise reduction circuitry keeps pictures clear and sharp.
- With just the RM-G800U and a pair of SR-S365U's, you have the most economical and productive time code editing system available. Edit video independently of the audio, adding new audio later if desired. For faster, more flexible editing, build a mixed system, using the powerful RM-S800U VCR. Either way, you'll get the benefits of CTL time code.
- Two channels of Hi-Fi for dynamic, high-quality stereo sound and an editable monaural (normal) channel. A new self-dubbing function allows you to copy the existing Hi-Fi track onto the normal audio track.

- Built-in time code generator/reader utilizing JVC's CTL Time Code System records time code data on the control track for fast and accurate access to any frame. Far superior to conventional control track counters that lose reference when the tape is removed from the machine, CTL Time Code can also be post-stripped without sacrificing the audio track.
- Built-in RS232C interface so you can connect it directly to a PC. Compatible with the many RS-232C-based editing controllers available today.
- **Other Features**
—Flying erase head • Hi-Fi audio recording level controls & indicators
—Headphone connector with volume control
—Automatic head cleaner • Digital hour meter indication

VES-58 EDIT-DESK S-VHS Editing System

BR-S500U Edit Player • BR-S800U Edit Recorder • RM-G800U Edit Controller

Fast, accurate and professional editing is affordable. Linked via JVC's proprietary control bus, these three units offer all of the editing features professionals have come to expect. The VCRs feature a fast, heavy-duty tape drive and the built-in CTL (Control Track) time code provides unparalleled accuracy and flexibility. Best of all, the VCRs feature an open architecture for easy system upgradeability.



SUPERB VIDEO PERFORMANCE

Picture improvement technologies like digital Y/C separation, chroma noise reducer, chroma aperture correction and a 3-line cross-talk cancellation all combine to offer outstanding image quality, even when dubbing down multiple generations.

CONTROL TRACK TIME CODE SYSTEM

JVC's CTL (Control Track) Time Code System records absolute tape address information (hrs: min: sec: frames) on the control track, for fast and accurate access to any frame on the tape - far superior to control track counters that lose reference when the tape is removed. CTL Time Code can also be "post striped" during recording.

FOUR-TRACK AUDIO

Two Hi-Fi stereo channels with a wide frequency response and dynamic range of 80 dB and two linear tracks. The BR-S800U's linear tracks can be dubbed independent of each other and of the video - ideal for adding background music or sound effects. There are 2 audio level meters, switchable between the Hi-Fi and linear channels. Separate input and output terminals are provided.

Two plug-in extension slots on the rear panels of both VCRs accept optional expansion boards. To build a PC-based edit system, add the SA-K27UA (RS-232C) board. To use with RS-422-based edit controllers, plug in the SA-K26U (RS-422) card. Other boards include the SA-N50U DNR board with time base stabilizer, and the SA-R50U VITC/LTC time code generator/reader.

RM-G800U EDIT CONTROLLER

- Features automatic assemble and insert editing, audio insert editing, as well as preview/review for checking edits before and after editing, and go to for direct access to any edit point. A capstan bump function is provided to assure greater edit consistency.
- Has two GPIs allowing automatic triggering of special effects generators, switchers or audio mixers.
- 8-digit LED counter indicates all edit data in either the TC or CTL mode. Switchable between player and recorder.
- Precise and responsive jog wheel makes it easy to locate any frame and can also be used to enter and trim edit points.

RM-G805U A/B ROLL EDIT CONTROLLER



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In the past if you wanted to isolate selected objects in a video sequence for compositing with other video sequences you had two choices. Either you rented a studio and shot hired talent in front of a blue screen or you masked each individual frame by painting over the area that you wanted to protect or cut out. Now wouldn't it be great if there was a tool that automated the process for you—right from your desktop?



AutoMedia AutoMasker

The World's Only Automated Video-Object Masking Tool

AutoMasker is the world's only automated software tool for accurate isolation of items and figures in a video clip. Using intelligent tools that quickly mark the border of an object in a key frame, AutoMasker determines the exact border in subsequent frames even when the object is multi-colored, changing its geometry or moving over a colorful and dynamic background. Using innovative break-through technology, AutoMasker enables automated masking, isolation, painting, extracting and insertion of selected objects into video streams at a fraction of the cost incurred using the conventional frame-by-frame painting method. Selected objects can be modified within AutoMasker or in combination with other digital video special effects or compositing software. AutoMasker is very flexible and works on just any platform—SGI, Windows 95 and NT 4.0. It works with standard file formats including TGA, BMP, QuickTime and AVI. The tools are powerful enough to work accurately, even on fields for precise masking results.

- Greatly increases masking productivity
- Automates masking of video objects even when they are multi-colored, changing their geometry and moving over colorful and dynamic backgrounds.
- Easy object selection in first frame and exact boundary tracing in subsequent frames
- Easy modification to object border and controlled anti-aliasing
- Independent automatic object and background color effects

- Simultaneous masking of a number of objects and objects with holes
 - Create mask or colored output movie, including optional alpha channel
 - Compatible with most file formats including TGA, VDA, ICB, VST, AVI, FLV, PCX, DCX
- Results can be used with most third-party applications.



Post-Production System on a Single PCI Card

Based on Pinnacle's EMMY award-winning special effects technology, GeniePlus is a complete desktop post-production system that includes a 3-D DVE, switcher, advanced character generator, fast still-store and a dynamic paint system—at a price you can afford. Equipped with an incredible array of features on a single PCI card, GeniePlus lets you create your own stunning effects, including page turns, water ripples and spheres with uncompromised 4:2:2 internal digital quality. The full-function 3-D DVE provides ultra-smooth motion and no breakup (prelapse) when pictures are sized or rotated. You'll be able to create exciting warp effects with lighting, trails, shadows and borders faster and more easily than ever before.

Switcher/DVE:

- Designed to make your A/B roll editing effortless, the GeniePlus switcher has two live inputs (with built-in frame synchronizers), two full-color frame buffers for use as still-stores, and built-in matte and black generators. Internal linear keying allows multiple layers to be created in a single pass, and Pinnacle's unique Genie Wipes and Alpha Wipes create visually stunning effects.
- Over one hundred effects and transitions that can be customized to instantly add spark and style. These include single-pass page turns, warps, ripples, spheres, trails, shadows and a wide variety of borders. You also have control over lighting and virtually all the controls can be keyframed. Create incredible moves and even use keyframes to have an object track an element on your screen.
- Full spectrum chroma keying with amazing quality. Quickly choose the exact color you want to key out.
- Add warp shapes to the foreground image and deliver high end quality never before available at such a low price point. New warp shapes including hourglass, hexagon, balloon, diamond, octagon, and bumps.
- Need a glint to attract the scene or title? How about a spot light to enhance the scene? Maybe you need to darken all but a certain part of the screen to point out an element? They are all yours with the new Manual Highlights controls.

Paint:

- Includes the same excellent paint program that ships with Pinnacle's Alladin. It works at D1 resolution (720 x 486) and comes with tools optimized for video graphics. Includes a de-flicker filter and also lets you batch convert a sequence of graphics files from different formats and scale them for video use. A pixel interpolation algorithm smooths the enlarged pixels and anti-aliasing without causing excessive blurring.
- Cursor is invisible. As a result, brush strokes look like animations, and may be used for example to illustrate sports moves, show a itinerary over a map or illustrate weather reports.
- A text buffer lets you use text in a variety of ways. Font available to Windows can be used for Paint, and text may be scaled, rotated, etc. Effects like shadows and outlines are easily applied and there are many options for the color of the text.

Character Generator:

- GeniePlus comes bundled with Inscribe CG, the standard for character generation. Inscribe supports multiple fonts (TrueType or PostScript), a great variety of text styles, geometric objects, various backgrounds, and different color combinations.
- Styles include a combination of settings such as emboss, glow, shadow, outline, gradient, and transparency.
- Import regular ASCII text files. Adjust text to the screen with automatic horizontal and vertical centering tools. Lines can be automatically abutted, aligned to the right or left, or placed anywhere on screen. Logos can be imported and placed at will, and backgrounds can be comprised of graphics files, solid colors, gradients or live video.
- Variable speed rolls and crawls are possible. The pages are set in Inscribe, and GeniePlus handles the smooth motion. CG pages can be used directly from Inscribe or saved to be used by the DVE. Foreign language special characters are also available.

Other Features:

- Compatible with Windows 95 and Windows NT 4.0.
- Includes GPI control for integration with stand-alone editors. And since most PC-based editing systems offer a direct interface to seamlessly control GeniePlus, you'll can focus on your production, instead of your tools.
- Has connections for six video inputs—three composite and three S-Video—two of which may be switched at a time. (Accepts NTSC or PAL signals). S-Video and composite sources can be mixed. There is also an external sync input with loopthrough. The board processes video in true broadcast quality, conforming to CCIR 601 standards.

TURNKEY GENIEPLUS COMPUTER SYSTEM

INCLUDES: • Pentium 166 MHz CPU • 220 Watt 6-Bay Midtower Case • 3.5" Floppy Drive • 32 MB RAM • 256K Cache RAM • Diamond Stealth64 2MB 32-bit VGA Display Card • Seagate Medalist 2.5 GB IDE Hard Drive • Creative Labs Soundblaster 16 Audio Card • Atec Lansing ACS-51 Amplified Computer Speaker System • Teac 8X-Speed External IDE CD-ROM Drive • Focus 2001A Keyboard • Logitech 2-button Mouse • Windows 95 • Princeton ED15 High Resolution 15-inch Monitor plus—card and software installed. **\$6495.00**



4-Channel Digital Audio Card for Windows

The next generation in digital audio for the desktop, StudioCard is a premium-quality digital audio adapter with advanced features, studio-quality specs and professional connections. Unmatched in quality, flexibility and expandability, it features 4 tracks of audio source and real-time digital mixing capability, making it the ideal board for musicians who want digital multitrack recording and mixing on their PC, or producers looking for a versatile board for post-production digital audio editing and uncompromised audio quality. StudioCard is Windows 95 plug and play compatible plus includes drivers for Windows NT as well.

- Key to StudioCard's amazing sound is the marriage of a low noise analog I/O section and high quality A/D and D/A converters. A PCI-based 32-bit memory mapped board, it delivers less than 0.003% total harmonic distortion and 96dB dynamic range. Plus, a PLL-based sample clock generator that can be locked to an assortment of clock sources.
- Incorporates a programmable 32-bit 40 MHz DSP and pro connections like 4 independent balanced analog I/Os (4x48u or -10 dBV) and AES/EBU or S/PDIF digital I/O. It also offers a MIDI port with deep buffering and time stamping. No matter which type of equipment you have StudioCard will integrate into standard studio environments.

- Compatible with film, video or MIDI. StudioCard offers synchronization via SMPTE, LTC, word and pixel clocks, and composite video. Plus, the StudioCard not only reads SMPTE timecode, but generates it as well.
- Unlike the Antex design is StudioCard's multiple adapter capability. This means you can install multiple StudioCards in a single computer for up to 16-track recording. Start with one StudioCard today—and more StudioCards tomorrow. Also included is an on-board S/P expansion connector for plugging in optional daughterboards for compression or enhanced DSP operations.



TARGA 1000/2000

PCI Video Capture Boards for Windows and Macintosh

The TARGA 1000 and 2000 are an easy and affordable way to transform your computer into a powerful digital editing system. Along with their high-speed PCI interface, both the TARGA 1000/2000 incorporate all you need to create spectacular multimedia content. They support NTSC and PAL standards and let you capture, edit and playback full-motion, full-resolution digital video with fully synchronized CD-quality audio. Designed for high performance PCs they deliver incredible processing speed for video and audio effects, titling and compositing.

TARGA 1000/2000 for Mac provides a flexible "plug-and-play" solution for video authoring, 3D animation and multimedia applications. Work on animation projects with software like Strata Studio Pro or Specular Infiniti-D and video or CD-ROM authoring with Adobe Premiere and After Effects 3.0.



Advanced DVR (Digital Video Recording) Technology:

The TARGA 1000/2000 employ advanced DVR technology to deliver superior video performance. Unlike other systems that treat each frame of video as a block of data tied to a specific order of steps such as decompression-resize-compress-write to disk, DVR writes an entire frame of uncompressed video to the huge on-board 20 MB RAM buffer of the TARGA 2000 (8 MB RAM buffer of the 1000). This is a "memory-centric" approach, in which all board functions share access to the video buffer. For example, a DSP (digital signal processing) chip can scan for additional data, such as matching audio samples to video frames to help maintain lip sync. Transitions, filters, effects and/or resizing can also be applied

while the uncompressed frame is in TARGA memory. The final output is then compressed and written to disk. Video data only crosses the bus twice—both times in compressed form. On other systems, the video data path is longer and more complicated. Video crosses the bus—twice uncompressed and twice compressed. The DVR architecture can access information in its memory buffer at a speed of 230MB per second. Video runs only at 2 to 7 MB per second, so the TARGA boards have all the time needed to decide what to do with each frame. And because uncompressed data is never sent across the bus, bottlenecks that plague other systems are eliminated.

TARGA 1000/2000 Features:

- Record and playback video directly to/from hard drive at 50 fields/sec—PAL, 60 fields/sec—NTSC. Video is stored and played back at the highest resolution for each format (768 x 576—PAL, 640 x 480—NTSC). Compression can be adjusted on the fly to optimize for image quality and/or minimum storage space.
- Audio is digitized at 44.1KHz or 48KHz sampling rates, for professional quality stereo sound. Since all audio and video processing is done by on-board DSPs, you are assured of perfectly synchronized sound and images.
- Equipped with composite and S-video inputs/outputs. Also available with component input/output (TARGA 1000 PRO).
- Genlock using separate sync input for working in professional video suites.
- Optimized to work with Windows NT-based software (Adobe Premiere 4.2, iSync Speed-Razor MACH III).

Macintosh version only:

- Video capture plug-in for Adobe Photoshop.
- Quicktime 2.1 compatible, can be used directly out of the box with many applications.

TARGA 2000 Additional Features:

- Accelerated Windows 3.11 and Windows NT 4.0 display drivers offer integrated, true-color (24-bit), non-interlaced desktop up to 1152 x 870 pixels.
- View your desktop and video-in-a-window on your non-interlaced monitor while the processed video is output at NTSC or PAL to a video monitor and/or a VCR.
- Provides a large work area for displaying video, as well as editing application controls. Any part of the display (or even the whole image) can be recorded to tape (video-out-a-window).
- Equipped with composite and S-video inputs/outputs. Also available with component input/output (TARGA 2000 PRO).

TARGA 1000 for Windows or Macintosh PCI (specify)	1499.00
TARGA 1000 PRO (Component input/output) for Windows or Macintosh PCI (specify)	1799.00
TARGA 2000 for Windows or Macintosh PCI (specify)	2899.00
TARGA 2000 PRO (Component input/output) for Windows or Macintosh PCI (specify)	3299.00

TARGA and DPS Windows NT Turnkey Systems:

- 220-watt, 6-bay midtower case
- PCI motherboard with 512K pipelined burst cache
- Pentium 166 MHz processor
- Diamond Stealth 3D 3400XL1 4MB VRAM PCI display card (Systems with iSync Speed-Razor MACH 3.5 receive a 9FX Motion 771 4MB VRAM PCI display card).
- 32MB of EDO (Extended Data Out) RAM (Premiere systems only)
- 64MB of EDO RAM (Speed Razor systems only)
- Quantum Fireball 2.5GB IDE system drive
- Seagate (Barracuda) 4.2GB SCSI-3 Ultra Wide hard drive
- Adaptec AHA-2940UW Ultra Wide SCSI-3 controller card
- MediaTRIX AudioTRIX Pro DSP-equipped 16-bit audio card (for DPS Perception systems only)
- Teac CD-512e 12X EIDE internal CD-ROM drive • 3.5" floppy drive
- Atec-Lansing 300.1 three-piece deluxe speaker system
- Princeton Ultra 17+ high resolution 17-inch multiscan monitor
- Focus 2001A keyboard • Microsoft MS mouse • Windows NT 4.0 operating system software



TARGA 1000/Adobe Premiere 4.2.....	\$5995	TARGA 2000/Adobe Premiere 4.2.....	\$7995
TARGA 1000 PRO/Adobe Premiere 4.2.....	\$6295	TARGA 2000 PRO/Adobe Premiere 4.2.....	\$8195

- PVR-2500/AD-2500 w/Adobe Premiere 4.2.....\$6995
 - PVR-2500/AD-2500 w/iSync Speed-Razor.....\$7995
- *PVR-2500 System Notes: 1) Does not include Adaptec SCSI-2 controller card (has built-in SCSI-2 port)
2) Includes Seagate Barracuda 4.2GB Narrow hard drive (doesn't accept Wide drives)

Expansions and Upgrades for all Systems:

Full Tower Case (10-bay).....	add 100.00	Super Tower Case (12-bay).....	add 200.00
Pentium Pro 200 MHz processor (256K cache) and Pro motherboard.....	add 750.00	With 512K cache.....	add 1200.00
Dual Pentium Pro 200 MHz processor (256K cache each) and dual Pro motherboard.....	add 2000.00		
Seagate Barracuda 9.1GB Ultra Narrow (for DPS).....	add 800.00	Seagate Barracuda 9.1GB Ultra Wide drive.....	add 900.00

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18.8GB Raid Array (Dual channel with two 9.1GB Ultra-Wide Drives—one drive per channel).....	5295.00
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PVR-2500 'Perception'

Digital Video Recorder The Heart of an Advanced Digital Audio/Video Workstation

The PVR-2500 offers powerful features for awesome animation, morphing and retouching capabilities. With features like 720 x 480 resolution, 10-bit 2x over-sampled video encoding, better than D1 scaling, component and S-Video outputs, multi-processor support and integrated FAST SCSI-2 controller, it empowers your computer to rival the finest professional production studios.

- The PVR-2500 is a full-length PCI card with a FAST SCSI-2 controller. Because the SCSI controller is integrated with the PVR-2500, video data never has to go over the PCI bus during playback. This avoids the bottlenecks found in systems which use the computer's hard drive for video storage.
- Exclusive multi-format virtual file system ensures complete integration with your application. Any acquired video or computer generated Perception video clips appear simultaneously in many different file formats including TARGA, SGI, BMP and IFF.
- Compatible with LightWave 3D, Softimage 3D Studio MAX and others. Perception also comes bundled with DPS Lockstep software to provide significant control over 3D Studio MAX.
- 10-bit 2x oversampled encoding for 720 x 480 broadcast quality resolution. Dynamic range is in excess of D1 scaling so images are brighter, have more color and greater spatial resolution than ever before. Component, composite and S-Video outputs are provided via the included breakout cables.

AD-2500 Component Video Capture Card

Coupled with the AD-2500 live video capture daughter card, the PVR-2500 becomes a broadcast-quality digital disc recorder delivering unsurpassed picture quality.

- Has component, composite and S-Video inputs for real-time recording. Captured video can also be exported as sequential RGB files for retouching and other compositing applications.
- Sophisticated automatic entropy prediction circuit analyzes incoming video and dynamically calculates the optimum amount of compression on a field-by-field basis—even during real-time recording. You also have complete manual control over compression level/quality settings.



- Runs under Windows NT 4.0 on computers with Pentium, DEC Alpha or MIPS processors. Perception utilizes NT's native support for multitasking and multiple processors, allowing use with the most powerful computers.
- Perception performs real-time interpolation of 30 fps video to 24 fps film rates or vice versa. This means that it is also at home on the Hollywood movie set as well.
- VCR-like controls on the Perception's GUI simplifies the task of batch digitizing and recording. In this mode, the PVR-2500 can read SMPTE time code from the source deck.
- Use with Windows NT compatible sound card while synchronizing of audio and video is maintained by the PVR software.
- Use with third party editing software such as Adobe Premier or iSync Speed Razor MACH 3.5. A system equipped with the PVR-2500, AD-2500 capture card, a sound card, editing software & one or more SCSI drives becomes a non-linear editor of unparalleled performance—at an unbeatable price.

FX-2500 Perception Effects Accelerator

The FX-2500 significantly reduces the time required to render complex non-linear transitions. Although it doesn't deliver real-time editing, it significantly improves the productivity of non-linear editing systems by dramatically speeding up the rendering time for many effects and transitions.

- With a stand-alone PVR-2500 a 30 frame dissolve can take minutes to render, even with the fastest PC, because the host CPU processes source frames on a pixel-by-pixel basis. The FX 2500 reduces the waiting time to under 10 seconds.



Spark is a DV editing system designed exclusively for use with DV camcorders and VCRs. An affordable direct DV editing solution, all you need to edit DV is a properly equipped computer and a DV camcorder. Digital audio and video are transferred from your camcorder to your hard drive in real time, using the supplied FireWire cable. Non-linear editing on the computer is facilitated with a full version of Adobe Premiere 4.2 editing software which is optionally included. Once content is edited, simply transfer back to your DV camcorder using the bi-directional fire wire cable. Since the video signal remains digital from start to finish, there is no generation loss for a finished product which rivals Betacam SP at a fraction of the price!

- DV2000U "SPARK" DV Board\$59.95
- DV2000 "SPARK" DV Board With Full Version Adobe Premiere 4.2.....\$49.95



SPEED RAZOR MACH 3.5

Digital Video Editor for Windows NT

The ultimate digital video editing software, Speed-Razor MACH 3.5 edits full screen, 60 fields per second, COIR 601 broadcast-quality video. Designed for the DPS PVR-2500 and Truevision TARGA series video capture cards, Speed-Razor MACH 3.5 is the fastest and most powerful tool for editing and compositing video clips, animations, stills, music and sound effects.

Speed-Razor features infinite video, audio, transition and effects tracks and comes with Razor Blades—transitions and effects to enhance your production. There are preset tumblers, fades and wipes which you can easily customize and save as new presets. In addition, there are special image effects which are unquestionably the highest quality of any system—analogue or digital. Speed-Razor sports anti-aliased 3D DVEs, an infinite channel chroma keyer and an excellent character generator. Use the included effects or transitions, layer them to create new ones, make your own grayscale bitmaps to use as transitions, or use 3rd party plug-in effects—the flexibility is yours.

There are two user definable resolution modes (thumbnail and final) to facilitate editing. The thumbnail mode allows you to use Speed Razor in the field on a laptop then transfer the project file back at the edit suite and automatically recapture and re-render the entire project at final resolution. RS-422 control and batch capture module allow you to automate video capture via SMPTE time code, so digitizing video and audio is simple and painless. In fact, with the innovative "Virtual Editing" function you can actually edit your project, complete with effects and transitions—before you've digitized a single frame of video.

COMPOSITING:

- Infinite number of layers of video clips, still and animations can be composited together
- Handles any resolution from Betacam (720 X 480) up to Omnimax film (4000 X 4000)
- Video clips can be combined using an alpha channel, key color transparency, still or traveling mattes

FILE FORMATS:

- Reads and writes ANI files (created by DPS PAR), PVD files (Perception), DVM files (TARGA 1000 and 2000) and sequences of TARGA files
- Convert files between any of the following formats: ANI, PVD, DVM, AVI, BMP, TGA, FLC, FLI, WAV
- Project-based Library for organizing your work

AUDIO:

- Handles audio up to DAT (48 kHz) quality
- Infinite number of audio tracks for multi-layer audio mixing

EFFECTS:

- Blur (circular, gaussian, fast), tint, brightness adjustment, chroma key, crop, displacement, emboss, freeze frame, glass texture, greyscale, invert, loop, matte, pixelate, repeat fields, scale, transparency, strobe, turn red/green/blue
- 3D DVE (translates and/or rotates an image in three dimensions on the X, Y and Z axis)
- Sets a color channel to an assignable value)
- Titles (full blown CG using any Windows font in any color with automatic drop shadow)
- Sub-pixel rendering for incredibly smooth motion
- Effects can be applied to infinite sources

TRANSITIONS:

- Includes over 100 grayscale image transitions, crossfades, luminance fade, fade to/from black, fade to/from white, push, twist, twist in/out tumblers, flip, turn, scale (zoom)
- Transitions can be applied between infinite inputs

iSync Speed Razor MACH 3.5 for DPS PVR-2500 and Truevision TARGA Series.....CALL



NEWTEK LIGHTWAVE 3D 5.5

3D Animation Software

Explosive ideas that test the boundaries of 3D animation deserve a program that can realize them in exciting new ways. Creating worlds that no one's ever seen. Creatures that have never walked the Earth. Special effects, games, web sites - all creations that exist only in your mind. Until now.

LightWave 3D gives you an easy way to create the most sophisticated 3D animation imaginable, with formidable capabilities from an incredibly powerful, professional animation system. Its intuitive, complete, easy-to-use layout and modeling system delivers the ultimate in creative control, not to mention flexibility - the likes of which you've never seen. And unparalleled features for modeling, surfacing, lighting and animating are right at your fingertips. LightWave 3D packs a wallop of a punch. Raytracing, motion blur, MetaMotion, inverse kinematics (IK), Bones, field rendering, lens flares, compositing - they're all here. LightWave 3D's OpenGL and QuickDraw 3D support mean you can see your creations in real time.

What's more NewTek improved LightWave 3D's anti-aliasing quality by 300 percent over earlier versions they also improved the accuracy of IK, and increased speed by 500 percent. Its robust

Open GL Support

- OpenGL or QuickDraw3D supports real-time shaded views and displays many surface attributes. Preview objects as solid or see-through wire frames in the OpenGL preview window.

MetaNURBS

- High-speed matte modeling for mind-boggling creations. LightWave's unique MetaNURBS is an elegant and easy way to model objects by transforming polygonal models to NURBS surfaces in real time. MetaNURBS delivers incredible detail and flexibility, so you can create smooth organic objects even though the model is actually based on polygonal geometry. Modeler lets you switch seamlessly between polygonal modeling and the organic power of NURBS for the best of both worlds.
- DragNet and Smooth Scale - designed to help you work with organic models. Both are especially great for MetaNURBS objects. Plus the new extender plug-in gives you added control over the objects you create with MetaNURBS.
- Also incorporates traditional spline-based modeling tools. Greater and hand drawn curves automatically converted to polygon surfaces. The spline modeler lets you create any shape you can dream up in incredible detail and lets you endlessly modify your creations - there's nothing you can't create.

Boolean Tools

- Boolean tools to cut, slice and combine objects. With LightWave's Boolean tool, things take shape fast. The Boolean principle is simple. Add, Subtract, Intersect. Take simple primitives, like spheres or cubes, and create complex shapes quickly and effortlessly.

plug-in architecture means you can choose feature options that match the way you work. And it's exceptional image quality and throughput make LightWave 3D an ideal choice for special effects in television, film, commercial work, web page development, graphic arts, video games and education.

With all of this it's no wonder you can find LightWave 3D in more Hollywood animation studios than any other 3D program. Yet you can get all of LightWave 3D's great features and exceptional performance for a price far more affordable than you dreamed possible. In fact, LightWave 3D costs up to 75 percent less than comparable programs.

It's no use having a great program if you can't run it. So LightWave 3D is available for all of the most popular platforms: Windows 95, Windows NT, Power Macintosh, DEC Alpha, SGI, and Sun Microsystems. Throw in over 40,000 loyal artists who share what they know, and you won't be able to wait to get your hands on LightWave 3D. After all, by giving many 3D designers their start, and moving them from the garage to their own special effects companies, LightWave 3D has changed people's lives.

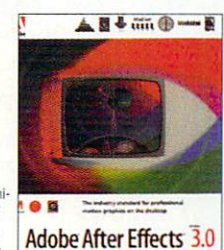
Other Features

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- Surface editing directly in modeler
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- Easy-to-use lasso style zoom
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- Multiple levels of undo and redo
- Automatic standards - design in metric, English or SI measurement units
- Mathematical functions can be typed directly into numeric requesters
- Translator loaders/savers for these formats: 3D Studio, AutoCAD (DXF) and Alias/Wavefront (OBJ).

Adobe

AFTER EFFECTS 3.1

Post-Production Tool for Compositing,
Motion Graphics and Special Effects on
Windows and Macintosh



After Effects 3.1 is the industry standard for professional motion graphics created on Windows-based PCs or Macintosh. It provides the power and breadth of features required by film makers, video producers and editors, graphic designers, multimedia professionals and web developers to produce high-end, unlimited composites, fluid animations, and sophisticated special effects. Available for Macintosh and Windows, After Effects 3.1 is tightly integrated with the Adobe product family, so if you work with Premier, Photoshop, or Illustrator, you already have the skills, shortcut know-how, and hardware to make After Effects a seamless, powerful extension of your creative arsenal. Turn your computer into a motion-graphics studio and put awe-inspiring action into your work.

SOPHISTICATED COMPOSITING:

- Combine digitized materials from any source to create sophisticated composites and traveling mattes using transparency, complex masks and alpha channels. Animate Photoshop layers and Adobe Illustrator art with new direct import capabilities.

SPECIAL EFFECTS:

- After Effects lets you use plug-in effects ranging from precise color correction filters to wipes and blurs, and even Photoshop filters. You can also animate each effect independently over time.

MOTION GRAPHICS:

- Position and animate layers with unlimited keyframes and sub-pixel accuracy. View and edit your spline-based motion paths on-screen. Ensure super smooth motion at any speed with field-rendering and true motion blur.

AFFORDABLE QUALITY:

- With After Effects you can create anything you can imagine. Get top-quality motion graphics for film, broadcast or CD-ROM—at a fraction of the cost of a dedicated hardware system.

Artel Boris Effects 2.2

A software-based multi-channel DVE generator, complete with intraframe interpolation, matte manipulation and multiple keyframes, Boris Effects allows you to create your own custom moves. Boris ships with a keyframe library of over 150 customizable effects including cubes, picture-in-picture, chroma keying, tilting, soft edges, masks, filters and compositing of unlimited track of video and graphics. Effects can be saved or used with different video source clips. Easily create 3D flying logo effects from PICT, TIFF, bitmap, Video for Windows and QuickTime files using an embedded alpha channel. Other features include borders and drop shadows which can be colorized and made soft and translucent, control over camera position and light source with specular highlights. Based on a plug-in architecture, Boris is compatible and closely integrates into Adobe Premiere and After Effects, Media 100, Avid MCXpress, iSync Speed Razor, FAST VM-Studio Plus and D-Vision Online desktop non-linear editing systems. Once installed in your system, it appears in the transition list and is easily accessed through their transitions and filters menu. It is not a background application and no extra memory is required.



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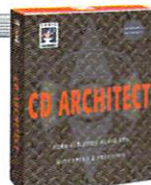
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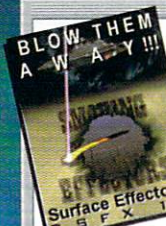
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But what exactly is at the top? What's it like up there? Not too many people get there, after all—not much room, you know? Only a select few. Hmm. Wouldn't be surprised if most people want to be there simply *because* it's such a small club. Exclusive! Is it glamorous? Well, small, exclusive things usually are, so sure! Why not?

But I bet you *still* don't know what's up there. There are people who look up at me like *I'm* one of those top-drawer folks. People who think that just because I supervise the CGI for "Star Trek: Voyager" that I'm looking down from Everest; that I *know*, you know? So they want to be right where I am, breathing the coveted air up *there*.

But let me tell you what it's like, Mike.

I used to be an animator. Yessir, I'd sit there every day and hope that the man upstairs would give me the cool shots so I could strut

my stuff. There was nothing quite like it—I'd crank up the stereo, turn down the lights, and pop open a six of Coke as I would let myself get assimilated by my computer. Hours upon hours would go by and nothing—I mean *nothing*—would exist outside of me and The Shot. A few hours later I would snap out of it and show The Big Man what the score was. He'd Yea it or Nay it and I'd be back in action with the Pentium mind-meld.

It was cool. I got to sit there and let the juices flow—day after day, week after week, year after year. But in the end, it was up to Mr. Big to decide what really went down. The man at the top rode the bottom line and decided what was in and what was out. I was just there for the ride.

But I wanted to be the driver! Take charge of the bus and drive the other cats in the direction I wanted to go. Well, you know what they say. A few years later,

here I am, hands on the wheel and eyes on the road.

There's only one problem. Sitting in the driver's seat is not what I had expected. To tell the truth, I never really considered what it would actually be like—I just thought it would be cool driving that bus. Maybe like a Magic Bus. Or that big old Partridge Family bus! But it ain't like that.

Instead, I feel like I'm at the wheel of that damn bus from *Speed*! The pace is as hectic as can be. Go too fast, you'll lose control—go too slow, and BOOM! You're just as toasted. This bus is big, and full of lots of people who depend on you and scream at you, and like it or not it's your job to get these people home on time. And, just like in the movie, stopping is not an option.

Being a driver, or an animation supervisor, ain't all that enviable a position. Now, instead of being the master of my own little world every day, I'm the master of a whole, big universe filled with lots of other people who have their own little worlds. Now it's my job to make sure all these little worlds form a nice little solar system where all the pieces match up just right.

And it's not just little planets anymore! Oh, no. That would be easy! I've got to make sure that

The view is great but it's a long way down...

BY MOJO

not only the planets are looking good, but their alignments are correct, their moons are in proper orbit, they're all at that perfect distance from the sun, the stars are twinkling just right, and God's coffee cup is filled all the time.

I don't get to animate much anymore. In fact, I have barely enough time to download a few pictures from alt.binaries.whatever (and that's with a T-1) before someone needs me to check on their scene—or a phone call comes in alerting me to the latest crisis, or a fax needs sending, or a schedule needs adjusting, or a butt needs kissing.

Only *then* do I have a chance to squeeze out a few drops of creative juice and do some of the work that I really want to do. Of course, it's 7 p.m. now—on Friday night—but the shot needs to be done and there's no one else around to do it. But hey—I'm *in charge*! I'm at the top and the air sure is... thin.

So, brothers and sisters, you want to rise up above it all and reach the summit? Make sure you poke your head up first and take a nice, long look because once you're there you may realize that it's a long way down.

Mojo is a supervising animator at Foundation Imaging. He currently oversees the CGI for "Star Trek: Voyager" and wonders what it's like outside.

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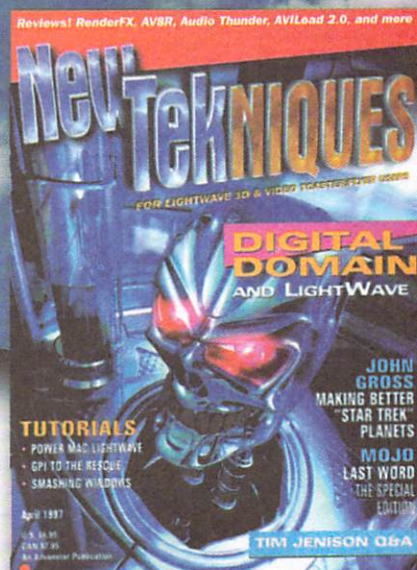
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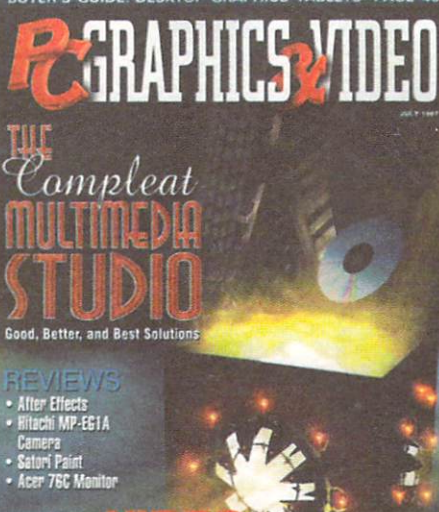
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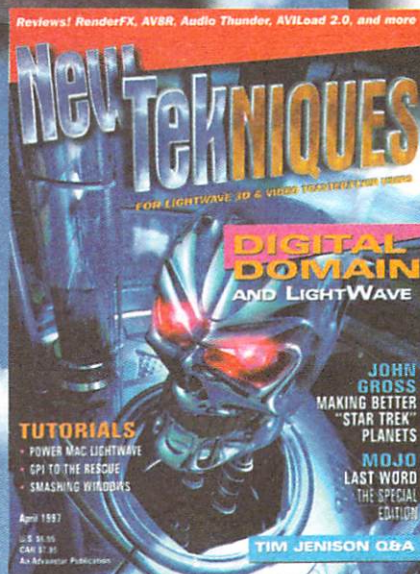
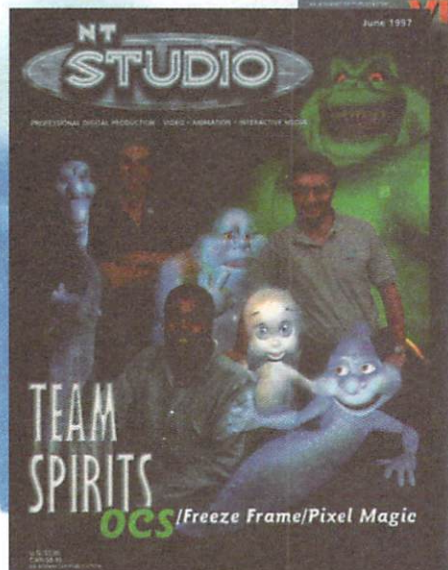
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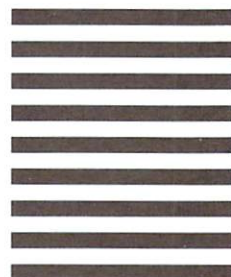
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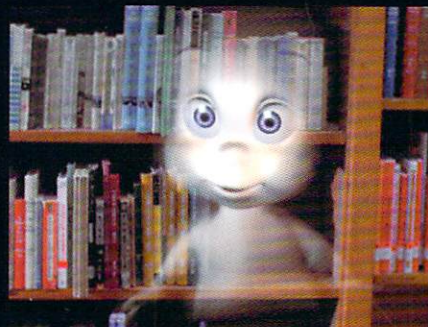
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